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QUARTERLY
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EDITED BY BEN: PERLEY POORE,
Secretary of the Society.

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JOURNAL OF AGRICULTURE.

VOL. X.

FEBRUARY, 1862.

No. 1.

TENTH AGRICULTURAL CONGRESS.

THE UNITED STATES AGRICULTURAL SOCIETY held its Tenth Annual Meeting, at the Smithsonian Institution, in Washington City, on the 8th and 9th days of January, 1862.

Hon. W. B. HUBBARD, of Ohio, President of the Society, called the meeting to order at 11 o'clock on the morning of the 8th, and requested the Treasurer to ascertain if a quorum of members (as required by the 5th section of the charter) was in attendance.

Hon. B. B. FRENCH, Treasurer of the Society, reported that there was not a quorum of members present.

Hon. LE GRAND BYINGTON, of Iowa, inquired if the meeting had been advertised in the newspapers.

BEN: PERLEY POORE, Secretary of the Society, stated that the meeting had been advertised in the *National Intelligencer*, the *National Republican*, and the *Evening Star*, of Washington City. Quite a number of members who had reported themselves at the business office of the Society had probably gone to the Capitol, where it had been announced that an interesting debate was to take place. Others had written, expressing their regret at being unable to attend, with their endorsement of a suggestion from a founder of the Society, that it would be best to make the session merely a business meeting.

On motion of J. H. SULLIVAN, Esq., of Ohio, seconded by Hon. ISAAC NEWTON, of Pennsylvania, the Society adjourned, to meet the next day at 11 o'clock.

SECOND DAY'S SESSION.

There was a creditable attendance of members, with a number of delegates from State Agricultural Societies, Senators, and Representatives in Congress.

After the delegates had presented their credentials, and the members had enrolled their names, President HUBBARD called the meeting to order and delivered his annual address.

PRESIDENT HUBBARD'S ADDRESS.

GENTLEMEN OF THE U. S. AGRICULTURAL SOCIETY: For the first time, I meet you in a general assembly of this Society. Although it gives me great pleasure to be here, you will all bear me witness that the honor, the high honor, of standing at the head of your Society, was unsought, and entirely unexpected by me. No one could have been more surprised than I was on receiving, as I did, over five hundred miles from your place of meeting, an official notice of my election. As it has been the habit of my life, upon accepting any office, to endeavor to perform the duties it devolved upon me faithfully, I have, during the past year endeavored, by correspondence and personal communications, to do all that was in my power to promote the great interests of agriculture; and I am now here to greet you all personally, and to take and give such counsel as may be deemed expedient to cause our Society to move onward, and to accomplish, as I hope, the glorious destiny of so awakening public attention to the great and fundamental interests of our common country, that the masses of the people will be led to the discovery, that their best and most permanent interests are intimately connected with, and dependent upon, the cultivation of the soil. For I believe that the true and virtuous civilization of any people depends upon the continued direction of the energies of that people to agriculture.

When agriculture flourishes, the people are invariably most contented and happy. When it is neglected, and the attention of the people is engrossed by a greed for sudden gain—by a lust for office and political power, or by a passion for war, be assured the sun of that people is on the decline, and that it will soon set, never again to rise.

Our beloved country is at this moment overshadowed by the dark cloud of civil war. How has this been brought upon us? By the turning of the people of a portion of this Union from the peaceful avocations that accompany the tilling of the soil, with all their kindly associations, to the false glitter of speedy commercial gain, and the occupancy of high position and power; ignoring the solemn truth spoken by Deity, that “in the sweat of thy face shalt thou eat bread all the days of thy life,” and also forgetting the promise, that “he that gathereth by LABOR shall increase.”

Notwithstanding the untoward circumstances under which we are assembled, it affords me great pleasure to say, that agriculture was never exercising its true benefits more effectively and conspicuously

than at this moment; for while the hardy yeomanry of the North, West, and East, have arisen in their might to put down as unholy a rebellion as the earth ever saw, (and which had its parallel only when Satan himself was hurled from the happy heaven of prosperity which he and his myrmidons, inflamed by the wicked lust for power, attempted to overthrow,) those who are left behind have sprung with alacrity to their plows, their hoes, their reapers, their mowers; and the generous soil, never stringent of its blessings when properly called upon, has given forth an abundance which is blessing not only our own country, but starving and overburthened millions in Europe.

It is, therefore, consoling to reflect, that although this war of rebellion has given a serious check to commerce and manufactures, yet agriculture has received, in the general, no check; and that thousands who have been thrown out of business in our cities, are retiring to the never-failing bosom of mother earth for support; and that while the quantities of some of the great staple crops, not necessary to the actual sustenance of man, may have been reduced, the North and the South have been forced to give more general attention to agricultural productions of the life-sustaining kind, that each might be the better enabled to supply its own wants. Hence it is believed that there has never been as much land planted in wheat, corn, potatoes, rye, barley, beans, and oats within the United States, as during the past year, and the husbandman has everywhere met with a fruitful reward for his labor.

I would have called together the Executive Committee of this Society for consultation, early in the last spring, but for several reasons.

1. The unhappy and excited condition of the country.
2. The exhausted condition of the finances of the Society, would not justify the incurring of any further expenditure than such as was absolutely necessary to carry on, economically, its current business; and
3. Your efficient and accomplished Secretary, himself a member of the Committee, on whom the carrying out of any order of the Committee would have depended, laid aside his pen, and with a patriotism and zeal which has always marked his course in life, seized his sword and stood for months among that glorious band of volunteers who so promptly stepped forward in the defense of our Union.

These reasons seemed to me sufficient to justify the course I deemed proper to pursue.

Having now met you, face to face, it will, I presume, be expected that I should express my views as to the proper course which should be pursued by this Society in the future.

It is well known to you, gentlemen, that there has existed, in many of the States, a jealousy towards this Society, which has been induced, mainly, by the course it has pursued in holding annual exhibitions in the States, which have necessarily, more or less, interfered with the prosperity of the State Societies

In my correspondence with the officers of the State Societies and other leading agriculturists, during the past year, I have studiously sought to do away with this cause of difficulty. I have invariably expressed the purpose of advising, and now do advise, that no annual exhibition of this Society should ever be held in any State where there is a State Society, without the express invitation and cordial co-operation of that Society. This being the settled policy of the U. S. Agricultural Society, it will tend to preserve and perpetuate, in amity, the true relations that should exist between this and all other Societies; the leading feature in the establishment of this Society being that it should be the representative body wherein every Agricultural Society in this nation should have a voice, and where the great national interests of agriculture should be cherished and concentrated, to be therefrom promulgated throughout the whole country, by those who would come here as representatives and members, and by the publications of scientific and useful documents and collections, which may be sent forth.

This Society should seek to furnish and publish periodically, for distribution, articles upon various agricultural subjects of the highest order. It ought not to be satisfied with mere common-place or medium productions. To insure such articles as are worthy of it, either the Society itself, at its annual meetings, or its Executive Committee should designate certain subjects, and invite essays or treatises upon them, for which prizes—either in money, medals, or honorariums—should be awarded.

This would insure a vast fund of practical information, which would be of great benefit to this country and, perhaps, to the world at large.

There is nothing pertaining to agriculture of greater moment than the production of cereals, and the U. S. Agricultural Society should do every thing in its power to encourage the utmost attention to the successful growing of crops of this kind.

The plan that suggests itself to my mind is for the Society, at its annual meeting in each year, to fix upon some one staple, and offer for the best crop of it, in each State, a premium of some sort, leaving to the State Society to award the premium; and, on its report to this Society, the premium should be paid. The same rule and policy may,

with great propriety, be extended to all other productions of the soil. I know of no way in which more could be accomplished by this Society, in exciting emulation all over the Union, and thus producing, in its effects, an aggregate of immense practical results and advantages.

I think that the holding of annual exhibitions in different States by our Society, of very doubtful propriety. Jealousies must and will be excited, manage as carefully and judiciously as you may; and I venture to say, that there never has been, and probably never will be, an exhibition held where all sorts of expedients have not been, and will not be, resorted to, to hold or absorb all the surplus money received over the legitimate expenditures, for the benefit of the locality where the exhibition is held. We have a notable example in the result of the exhibition of 1860, at Cincinnati, when, after a series of difficulties, the Society came off with a loss of many hundred dollars, and the entailment of sundry law-suits on some of the most energetic of the Cincinnati managers, which, it is believed, are still pending.

My plan would be to procure ample grounds in the District of Columbia, where the Society has its home, on which there should be erected commodious buildings, adequate to the wants of a national Society, where agricultural experiments could be made, and where exhibitions could, with much propriety, be periodically held.

For the procurement of such grounds, and the erection of the necessary buildings thereon, the Society has a right to expect that the good citizens of the District, whose liberality is well known, will contribute generously; that reasonable aid will be given by the national Government; and that the citizens of our whole Union will lend a helping hand to so worthy and desirable an object. For it is for the interest of every one throughout this broad-spread Republic that all shall be done that lawfully can be, for the perpetuity and future glory of this Capital, which bears the illustrious name of the Farmer of Mount Vernon. Most especially should the farmers of the country see to this.

A DEPARTMENT OF AGRICULTURE

has now become an absolute necessity. The great agricultural interests of the country demand it, for agriculture is the basis and support of all productions; as well of the mechanic arts as of commerce.

Agriculture furnishes the means for the support of Government, and from the household and fields of the farmer, mainly, come forth the men on whom the Government must rely, in time of need, for its defense and protection, and for preserving unsullied the glorious flag of the Union. Should not, then, this great and leading interest of the

nation have its voice strong and distinct in a full executive department of the Government? Is there a single farmer in all the land who would not answer "aye" to this question? Then, farmers of the United States, *up and at* your Representatives in Congress, and give them no rest until a Secretary of Agriculture, representing your combined interests, has a potential voice in the Cabinet of your President of the United States.

I trust the present session of Congress will not pass away without a powerful effort to accomplish this great and invaluable object; and if it is properly pressed, it can hardly be doubtful of success.

We know full well how commercial, financial, and political combinations can be brought to bear upon the Government to influence its action in their favor, whilst the agricultural interests are lost sight of for the want of a representation of the real "power behind the throne" to watch over and protect them.

Give us the representation of that power, and we shall feel that our interests are safe.

The Treasurer and Secretary of the Society have, in so far as has come to my knowledge, performed their respective duties faithfully. They are both accomplished and trusty officers, and worthy of the confidence that has so long been placed in them by the Society. They will each submit their respective reports, from which the Society will learn in detail what has been done.

The funds of the Society appear to be very nearly exhausted; and some measures must be taken to increase them, if we desire the Society to go on and prosper.

There has been considerable delay in the delivery of the medals awarded at the late exhibition of 1860. By order of the Executive Committee, the Treasurer paid over to John McGowan, Esq., as appears by his report of last January, \$2,368 45, for the purchase of medals. This sum was supposed to be more than sufficient to procure all the medals awarded, and to pay for engraving them. The medals were procured by Mr. McGowan, and sent to the Secretary, and by him placed in the hands of the engraver. Up to this time, the Secretary has not received the money, so placed in Mr. McGowan's hands, wherewith to pay for the engraving; and the medals are still in the engraver's hands, thus and necessarily detained and kept back from those to whom they were awarded. Unpleasant as this explanation is, it is due to justice and the parties interested that it should be made; and while making it, permit me to express the hope that, hereafter, the money of the Society shall be suffered to remain in the possession of the legitimate

officer—the Treasurer—until drawn out on proper vouchers, and to meet the just liabilities of the Society.

Before concluding my remarks, it is proper that I should call your attention to the fact, that some of those who have labored with us in this our great field of enterprize, are no more; for that inexorable reaper death—has gathered them into his fold since our last meeting.

The Hon. Henry Wager, who was an officer of the Society from its foundation, and who served one year as our President, and declined a re-election, has left us to lament his loss, and to pay appropriate honors to his memory.

The Hon. Stephen A. Douglas, who was also one of the founders of the Society, and for a time one of its officers, and who always manifested a deep interest in its welfare, demands at our hands an expression of our sense of the loss we have sustained in his death. Neither should we omit to render a tribute of respect to the memory of A. Clement, Esq., of Philadelphia, who was for several years our Vice-President for Pennsylvania, and who ever evinced a warm interest in the welfare of our association.

REFERENCE OF ADDRESS.

Mr. POORE moved that the address of the President be referred to Messrs. CALVERT, of Maryland, NEWTON, of Pennsylvania, and SMYTH, of New Hampshire, who should also constitute the Auditing Committee.

Mr. BYINGTON, of Iowa, objected to this mode of reference, although he desired not to be understood as disapproving of the address. There were suggestions embodied in it, however, which he should prefer to have discussed by the Society, rather than to have any discussion on the report of a committee endorsing them.

Mr. POORE explained that the appointment of the committee was in accordance with the usages of the Society, and the vote being taken the committee was appointed.

Mr. FRENCH then presented his report as Treasurer of the Society for the past year, which was read and referred to the Auditing Committee.

Mr. POORE presented his report as Secretary of the Society for the past year, as follows:

THE SECRETARY'S REPORT.

SECRETARY'S OFFICE, U. S. AG. SOCIETY,
WASHINGTON, *January 7, 1862.*

The Secretary would respectfully report, that during the past year

he has been in daily attendance at the rooms of the Society, except while he was in the three months' volunteer service, near Baltimore, when he attended but once a week. He has performed all the duties imposed on him by the Constitution to the best of his ability, and he regrets that circumstances, which will be narrated, have prevented him from carrying into effect the expressed wishes of the Society.

The library and reading-room has been kept open during business hours during the year. The expense has been: rent, \$250; office-boy at \$2 per week, \$100; fuel, \$12; a water bucket, \$1; and postage on newspapers, \$3 50—the gas-bills he has paid from his own pocket, having generally used the lights for conducting private correspondence, and he has paid upwards of half the boy's wages, as he derived some slight personal advantage from his service. This will leave the cost of the room to the Society at less than three hundred dollars, and there is a probability that the liberality of the proprietor, Mr. Todd, may reduce that amount.

While it is advantageous to the Society to have a place of deposit for its accumulating library, for the back numbers of its Journal, for its medals, and for the records of its Exhibitions, the Secretary has not found that the present expensive location was remunerative to the Institution. But few members visit the reading-room, nor is it believed that it has been the means of adding new members to the Society. Your Secretary would respectfully suggest that a far less expensive place of deposit for the Society's property be found at an early day.

The February number of *The Journal of Agriculture* was issued, and is herewith presented. It elicited letters from officers and members of the Society in different sections of the United States, expressing approbation of its contents and appearance, and pledging material aid in the shape of remittances for life-membership. But the hopes thus excited were arrested by the breaking out of civil war in April, when this city was for some time cut off from all mail communication, which has never been resumed with the Southern States. Before the period arrived for issuing the second number, Government had taken possession of the office at which the Journal had been printed, and at that time it was not possible to have continued the publication.

When, in the fall, matters were more tranquil, the Secretary prepared the remaining numbers of the volume for the press, but on consulting printers a difficulty presented itself. Owing to the disturbed state of the country, no money had been received by the Treasurer, either for memberships, or from officers of the Society who had its funds in their possession, while there was reason to fear that every dollar on hand might be required to pay debts of the Cincinnati Exhibition which the Society is bound in honor not to repudiate. For other obligations which remain as a legacy of that Exhibition, the local committee is responsible, as they authorized the contraction of the indebtedness.

The treasury was thus virtually empty, and there was on record a vote of the Society "that the Executive Committee be directed to incur no expense, unless such expense can be paid out of the funds in the hands of the Treasurer." It has always been the pride of your Secre-

tary never to have been directly or indirectly concerned in any depletion of the Society's treasury in any unconstitutional or unfair manner, (whatever may have been his other official faults,) and he neither felt justified in taking money from the treasury, a part or all of which should be devoted to the payment of debts previously incurred, or of running the Society in debt, in opposition to its direct vote.

The material for the remaining three numbers of the volume is prepared, and your Secretary suggests that it be published, together with the *Journal* for the coming year, which will complete the first ten yearly volumes of the Society's transactions, or the first series, and he has assurances that the expenses of this publication can be paid from the receipts of life-memberships, obtained with the assurance that they are to be devoted to a printing fund. A desire has been expressed by old and true friends of the Society to have its first ten years' publications thus fairly completed.

In exchange for its *Journal*, the Society has received nearly all the agricultural periodicals of the country, which, when they can be bound, will form a valuable addition to the gradually increasing library. Thanks are due to editors and proprietors for their liberality.

By the Act of Incorporation it is the duty of the Secretary "to issue medals," and he considers it his duty to explain why he has not issued those awarded at the Cincinnati Exhibition of 1860—indeed, he has been positively directed by President Hubbard to lay the information before the Society. In the premium-lists and announcements of that Exhibition, it was announced that the medals would be ready for delivery at the ensuing annual meeting—that of last January, when, and since when, they have been clamorously demanded.

It has been customary for Mr. John McGowan, a member of the Executive Committee, residing near Philadelphia, to submit an estimate at the exhibitions of the number of medals required, and to receive funds for obtaining the same from the United States Mint at Philadelphia.

There was thus paid to Mr. McGowan, at Cincinnati, the sum of \$2,368 45, which was his estimate (herewith presented in his own hand-writing) of the cost of the medals, their cases, and the engraving of them—which engraving was estimated at \$306.

It is here necessary to state that at the three previous exhibitions, the medals had been ordered from the premium-list. But while nearly all the silver medals offered were awarded, with enough as Discretionary premiums to use what remained, there was always a small surplus of the bronze medals, which are regarded as second-class rewards, and seldom recommended as Discretionary premiums. On returning from Cincinnati, your Secretary found that he had enough bronze medals, and so advised Mr. McGowan, but learned that the order had been given and could not be countermanded.

The bronze medals on hand were placed in the engraver's hands, and on the 8th of December your Secretary wrote to Mr. McGowan, urging the transmission of the gold and the silver medals, that they might be ready for delivery at the annual meeting. He wrote in reply, on the 15th of December, "I expect to send the silver medals next week."

They were received on the 7th of January, and at the annual meeting the Treasurer was requested to ascertain the cause of the delay. J. R. Snowden, Director of the Mint, answered the letter of Major French, saying: "In response to your letter of the 10th inst., [January, 1861] I have to state that *all* the medals ordered by your Society last autumn were finished in November last. The gold and silver medals were paid for by Mr. McGowan, a few days since, and by his direction forwarded to the Secretary of your Society at Washington City, per Express. The bronze medals have not yet been called for. I should be pleased to have the transaction closed up as soon as convenient, as the medal account for the last quarter cannot be forwarded to the Department until the copper medals are paid for." Major French replied, requesting the Director of the Mint to call on Mr. McGowan for payment of the bill, and to forward the medals to the Secretary. They have not been received.

Having, however, (as was before stated,) enough bronze medals for the Cincinnati awards, and having received the gold and silver medals, the Secretary set the engraver at work, and on the 11th of February sent the bill for engraving, \$141 40 to Mr. McGowan, with a request for immediate remittance, that the medals might be distributed.

A correspondence ensued, but no satisfactory reply was received. On the 20th of March, Mr. McGowan said: "The gold and silver medals you have received, the bronze are paid for and left at the mint, subject to my order; which I thought best, as you said you did not need them; if wanted, they can be had at any time; the cases are also finished, and remain at the factory. Out of the balance, \$300 60, in my hands, there is the advertising bills here, amounting to nearly \$100, most of which are paid, and a balance of about \$70 due me, from Mr. Wager, on the old account. I have a regular account of both transactions. I think it would be best to keep them separate. I have no doubt but that I can collect enough from life-memberships to pay the advertising bills, when I can meet with them: I have some twenty on my list."

Your Secretary replied, urging that, as by Mr. McGowan's own showing, he had a balance of \$300 60 on the Cincinnati medal account, having paid for all the medals and their cases, he should pay the \$141 40 for engraving. This would have left him nearly the amount which he claimed, without any of the life-memberships alluded to, and admitting that the advertising bills were \$100 and that there was a balance due of \$70. It had been provided, by vote of the Executive Committee, taken when Mr. McGowan was present, that he should pay the advertising bills at Philadelphia out of certain moneys which he stated he had collected for life-memberships. The following was the reply, dated April 1st: "Dear Major:—Yours of the 30th received. I agree with you about the engraver's bill and will send you the amount in a few days. I am a little short just now."

Weeks passed, no money came: but, on one hand, the engravers presented their accounts; while, on the other, those to whom medals had been awarded, or their agents, persistently, and sometime not very courteously, demanded them. In the fall I again urged Mr. McGowan to pay the demand, for which the gold and silver medals are virtually

held in pawn; and afterwards meeting with a prominent officer of the Society, I suggested to him to write to Mr. McGowan, inquiring why the medals were not delivered. He did so, and in a few days I received a letter from Mr. McGowan, in which he adopted a previous suggestion of mine, and enclosed a draft on himself, payable thirty days after date. This draft I deposited for collection, and in due time it came back, protested.

Your Secretary was then forced to write to Mr. McGowan, that, unless the draft was taken up before the next Monday, the responsibility must be placed where it belonged. Monday arrived, but no letter, and President Hubbard reaching here on Tuesday, the facts heretofore stated, with the original correspondence, were laid before him.

In justice to Mr. McGowan, it must be stated that the next day following a letter was received from his brother, announcing his sickness; and on Friday came a letter from him, stating that on the Sunday before Christmas he had been so ill that he was not expected to live, and that a new draft drawn on him, payable at the Commercial Bank, payable on the 8th of February, would be honored. This will not be published until that day has passed; and, if the money is forthcoming, I claim the privilege of suppressing it.

The Secretary entered upon the year with the knowledge that every dollar then in the treasury belonged rightfully to other persons, to whom it was due, and he has made no claim for any salary—indeed, he has expended nearly \$60 toward keeping the room open from his own means. What services he has been able to render, have been freely given, but only given because there appeared to be no one willing to perform them, and with a firm determination not to retain the position of Secretary when the Society was able to pay one. As he last year remarked, if the United States Agricultural Society desires success, it should first remunerate those who are expected, month after month, week after week, day after day, to perform its work.

Again does the Secretary desire to express his conviction that there is a mission for the United States Agricultural Society to fulfill, by acting as a central organization, into which information can flow from every quarter of the Republic, to be at once disseminated again in every direction. But to do this, the earnest co-operation of State and local organizations is indispensable, and if they are kept aloof by the holding of exhibitions, or other causes, the usefulness of the Society is necessarily contracted. The Society should never again hold an exhibition, unless with the approval and the cordial co-operation of the central agricultural organization of the State in which it is located.

The permanent location of the National Exhibition here, has been repeatedly recommended by the Secretary, and his experience but confirms him in the opinion that the metropolis is the proper place for the exhibitions of the United States Agricultural Society. Washington neither shares, nor is the object of those jealousies which commercial rivalry produces, and men of all pursuits, of all parties, and from every portion of our vast continent, take pleasure in coming here. As the spot where all legislation upon the great industrial interests of the country is carried on, it stands most in need of practical

illustrations of the conditions of those interests. Could our legislators see the fruits of agricultural labor—the herds collected from “a thousand hills”—the raw materials which nature has so bountifully bestowed upon us, and the implements and machinery used in cultivating the great staples, and in preparing them for the use of man—they might more properly appreciate the value of agriculture to our country. Nowhere could an exhibition be more likely to contribute to the advancement of agricultural and industrial labor than here at the metropolis.

All of which is respectfully submitted.

BEN: PERLEY POORE, *Sec. U. S. Ag. So.*

On motion of Mr. WILLIAMS, of Maine, seconded by Mr. SERGEANT, of District of Columbia, it was

Resolved, That if Mr. McGowan does not, prior to February 15th, make a satisfactory settlement of his account with the Society, showing his expenditure of the \$2,368 45, received by him at Cincinnati, (as per his memorandum,) for medals, cases, and engraving, the Secretary place the papers, on which his report is based, in the hands of the Treasurer, who is hereby authorized and directed to take legal measures for the payment of what may be due the Society.

Resolved, That the Director of the United States Mint at Philadelphia, be requested to forward to the Treasurer of the United States Agricultural Society, all medals in his possession struck from the dies of the Society.

ELECTION OF OFFICERS.

It having been moved to proceed to an election of officers for the ensuing year, Mr. BYINGTON requested permission to offer first the following resolution:

Resolved, That until otherwise provided, it is hereby declared, that the actual pursuit of agriculture shall be a qualification for the holding of any office in the United States Agricultural Society, except those of Secretary and Treasurer.

After a brief discussion, a vote was taken, and the resolution was lost.

On motion of Mr. HANSON, of New Jersey, seconded by Mr. ARNY, of New Mexico, the Society went into Committee of the Whole, for the nomination of officers, Vice-President SMYTH in the chair. The President was unanimously nominated, and the States were then called, one by one, that the claims of each Vice-President for the past year, and of other gentlemen named, might be discussed. When the ticket was completed the Committee rose, and reported to Vice-President NEWTON, who took the chair.

Messrs. CALVERT and BYINGTON were appointed tellers, to receive, sort, and count the votes. They performed that duty, and reported

that the following ticket, as adopted in committee, had been unanimously elected:

OFFICERS FOR 1862-'63.

PRESIDENT,

WILLIAM B. HUBBARD, *Columbus, Ohio.*

VICE-PRESIDENTS,

N. B. CLOUD.....*Alabama,*
A. H. MYERS *California,*
H. P. BENNETT *Colorado,*
HENRY A. DYER *Connecticut,*
JOHN PATTER.....*Dacotah,*
JOHN JONES.....*Delaware,*
W. W. CORCORAN.....*Dist. Columbia,*
W. HAYWARD.....*Florida,*
JAMES HOSKINSON.....*Georgia,*
JOHN A. KENNICOTT.....*Illinois,*
W. T. DENNIS.....*Indiana,*
L. DEWEY.....*Iowa,*
JOHN T. JONES *Kansas,*
B. W. CLAY *Kentucky,*
C. W. POPE.....*Louisiana,*
JOHN LANG *Maine,*
ANTHONY KIMMEL.....*Maryland,*
WILLIAM SUTTON *Massachusetts,*
T. B. CRIPPEN.....*Michigan,*
CYRUS ALDRICH.....*Minnesota,*

WILLIAM MARTIN.....*Mississippi,*
J. R. BARRETT.....*Missouri,*
W. T. BROWN *Nebraska,*
JOHN CRADLEBAUGH...*Nevada,*
FREDERICK SMYTH.....*N. Hampshire,*
J. R. DOBBIN.....*New Jersey,*
W. F. M. ARNY.....*New Mexico,*
H. K. BURGWYN.....*North Carolina,*
J. H. KLIPPART *Ohio,*
AMORY HOLBROOK.....*Oregon,*
FREDERIC WATTS *Pennsylvania,*
ELISHA DYER *Rhode Island,*
B. F. STANLEY.....*South Carolina,*
M. B. COCKERILL *Tennessee,*
J. T. WARE *Texas,*
EDWARD HUNTER.....*Utah,*
FREDERIC HOLBROOK.. *Vermont,*
F. H. PIERPONT *Virginia,*
I. S. STEVENS.....*Washington,*
F. W. HOYT.....*Wisconsin.*

EXECUTIVE COMMITTEE,

MARSHALL P. WILDER,...*Massachusetts,*
ISAAC NEWTON.....*Pennsylvania,*
FREDERICK SMYTH,.....*N. Hampshire,*
LE GRAND BYINGTON.....*Iowa,*

CHARLES B. CALVERT...*Maryland,*
J. H. SULLIVAN.....*Ohio,*
A. H. MYERS.....*California,*

TREASURER,

BENJAMIN B. FRENCH, *Washington, D. C.*

SECRETARY,

BEN: PERLEY POORE, *Washington, D. C.*

Mr. HUBBARD, on resuming the chair, expressed his thanks for the honor conferred, and his earnest hope, that when the Society should meet again, twelve months hence, it would be under more auspicious circumstances.

Mr. BYINGTON presented the following resolution, which was seconded by Mr. FRENCH, and passed:

Resolved, That if any vacancy shall occur in the officers of this Society, other than that of the office of President, during the recess between the annual meetings thereof, the President shall be authorized and required to fill such vacancy by appointment; and that the Secretary be requested to report any such vacancy, which may come to his knowledge, to the President, as soon as practicable after he shall have been advised thereof.

Mr. CALVERT, of Maryland, said that he was about to present a res-

olution, placing the name of the President of the United States on the roll of honorary members. Mr. Lincoln was, he believed, the owner of a farm, and a volume of the transactions of the United States Agricultural Society contains an address from him on agriculture, which shows an intimate acquaintance with the practical cultivation of the soil. With these antecedents, it was gratifying to find that in discharging his presidential duties, Mr. Lincoln had continued to appreciate the importance of agriculture, and that he had recommended its recognition in our Government, by having officers charged with its interests. For one, (Mr. CALVERT went on to say,) it was well known that he had, year after year, urged the establishment of a Department of Agriculture, with a Cabinet officer at its head, and he should tomorrow again urge on the Society the propriety of not merely asking, but of *demanding* of Congress, the creation of such a department, with proper officers. He would move the following resolution:

Resolved, That Abraham Lincoln, President of the United States, be, and he is hereby elected, an honorary member of the United States Agricultural Society.

The resolution was unanimously passed; and, on motion of Mr. LOVEJOY, of Illinois, the Society adjourned, to meet the next morning at ten o'clock.

THIRD DAY'S SESSION.

Mr. CALVERT, from the committee to whom was referred the annual address of the President, now reported the following resolution, which was seconded by Mr. RAWSON, of New York, and passed:

Resolved, That five thousand copies of the President's Message be printed for general circulation.

Mr. CALVERT also reported that the same committee, to whom had been referred the accounts of the Treasurer for the year past, had examined them, and found them to be correct. The report was accepted.

The special order of the day, the establishment of a Department of Agriculture, was then taken up, and discussed by Messrs. CALVERT, ARNY, TITUS of Pennsylvania, BYINGTON, MYERS, SULLIVAN, and other gentlemen. Several propositions and amendments were presented, and the result of the discussion was the adoption of the following preamble and resolutions:

Whereas the agricultural interests of this country underlie all other interests, and are of so much importance to the prosperity of our country as to demand the fostering care and encouragement of our Government;

Resolved, That this Society reaffirms its opinion heretofore expressed, that it is indispensable to the better development of the paramount interests of agriculture that a department of agriculture be established at Washington.

Resolved, therefore, That a committee—to consist of three members, co-operating with the President of the Society—be appointed, and charged with the duty of conferring with the Agricultural Committee of Congress, with a view to the passage of a bill by Congress to create such a department.

President HUBBARD subsequently announced, as his colleagues on this committee, Messrs. ARNY, TITUS, and BYINGTON.

On motion of Mr. RAWSON it was—

Resolved, That the Secretary of the Society compile, from the transactions, the different by-laws and regulations passed at different meetings, with such others as his experience may suggest, and submit the same at the next annual meeting, as the basis of a code of by-laws, which shall then be adopted.

At three o'clock P. M., the Society adjourned, to meet at its rooms in the evening.

EVENING SESSION.

Mr. BYINGTON presented a series of resolutions, appointing Commissioners to represent the Society at the coming Exhibition of the Industry of all Nations, which were discussed at length, amended, and passed, as follows :

Resolved, That the President of this Society be authorized and requested to appoint and commission three individuals, from among the members thereof, to represent this society at the World's Exhibition, which has been appointed to be held in England during the present year.

Resolved, That said Commissioners make report of their proceedings and observations in the premises, at the next annual meeting of the Society, to be held in January, 1863.

Resolved, further, That the President of this Society, after he shall have made said appointments, communicate the same to the President of the United States, and respectfully request his indorsement of the same.

President HUBBARD appointed Messrs. SMYTH, of New Hampshire, KLIPPART, of Ohio, and MYERS, of California. Commissions for these gentlemen were made out, and placed in the hands of President LINCOLN, who said that he would transmit them to the Secretary of State for authentication.

Mr. BYINGTON remarked that he had introduced, at the annual meeting of the Society in 1859, a series of resolutions recognizing the importance of agricultural education, and urging provision for its liberal support by congressional legislation. He desired to have the opinions

then expressed by the United States Agricultural Society, now endorsed, and would offer the following preamble and resolutions :

Whereas, at a previous meeting of this Society, the following resolutions were unanimously adopted, to wit :

“Resolved, That the subject of agricultural education is recognized by this Society as one of paramount importance to the prosperity of the whole country, and commends itself to the unremitting exertions of this and all other agricultural societies of the Union.

“Resolved, That the most available means for its promotion and general diffusion, are the establishment and liberal support of public schools and colleges, by and within the States of the Union, which are wholly or essentially dedicated to practical instruction in the principles and processes of agriculture, and the mechanic arts.

“Resolved, That, in addition to aid of such institutions by Congress, which we have heretofore recommended, this Society pledges its best energies in the promotion of the great objects of their establishment, and invites from their managing boards correspondence and interchange of publications, acts, and opinions.”

And whereas, We still adhere to these opinions, therefore—

Resolved, That a committee, to consist of the President of this Society and three members thereof, be delegated to urge upon Congress, at its present session, the passage into a law of the “Land Donation Bill,” originally introduced into the House of Representatives by the Hon. Justin T. Morrill, of Vermont.

The preamble and resolutions were seconded by Rev. Mr. BROWN, of New York, who urged the propriety of passing the bill referred to, which provides for the donation of a portion of the public domain for the endowment and maintenance of one college, at least, in each of the States of the Union, whose leading object it shall be to impart instruction on the subject of agriculture.

Other gentlemen advocated the preamble and resolutions, which were unanimously passed. President HUBBARD announced as his associates in the committee, Messrs. NEWTON, SERGEANT, and DEWEY.

Mr. DENNIS, of Indiana, desired to bring before the notice of the Society the wine-crop of the county, as rapidly increasing in importance, and already a source of large profit to agriculturists. Europe, which so long enjoyed almost the monopoly of producing wines, must soon give way to the products of the vineyards of the United States, and it is very desirable that our wine-growers should be enabled to meet at a National Exhibition, to compare and to determine exactly the grade which each should occupy. He offered the following resolution :

Resolved, That a list of premiums be offered, payable at the next annual meeting of the Society, for specimens of native wines, and that a committee of three be appointed, to make the necessary arrangements, *Provided*, that the Society shall not be submitted to any expense thereby, save the cost of the medals and the diplomas awarded as premiums.

The resolution was adopted, and President HUBBARD appointed as the committee of arrangements Messrs. DENNIS, SULLIVAN and MYERS.

The suggestion in the annual address of the President, that the Society offer premiums for the best crop of some one staple, in each State, was discussed at length, and it was—on motion of Mr. POORE, seconded by Mr. MYERS—

Resolved, That the Executive Committee prepare a premium list, offering the medals and diplomas of the Society for the best crops of Cotton, Flax, and Hemp which may be raised in each State, during the present year, requiring statements embracing the following facts: 1.—Location of the land, which must be at least half an acre; kind and condition of the soil; crops raised the two preceding years; quantity and kind of manure then used, if any. 2.—Manner of preparing the land; quantity and quality of manure applied, if any, and how applied. 3.—Quantity and kind of seed; whence obtained; when and how sown or planted. 4.—The time and manner of cultivating. 5.—Mode of gathering the crop and preparing it for market, with the actual yield. 6.—When the crop was sold, if disposed of, and its market value. 7.—A detailed account of the expense of cultivation, with any suggestions of a practical nature.

Resolved, That State Boards of Agriculture and State Agricultural Societies be requested to offer and to award the premiums of the United States Agricultural Society for the States in which they are located, and that their decisions be adopted by the Society as final. In each State where no such central organization exists, the Vice-President from that State shall designate a local Agricultural Society which shall be requested to offer and to award the premiums.

Resolved, That premiums be also offered for Essays on—the history of, the statistics of, the crop in other lands of, the insects injurious to the growth of, the implements used in the culture of, and the mode of preparing for market—Cotton, Flax, and Hemp. No essay shall be entitled to a premium unless it shall be considered by the committee to be of sufficient advantage to agriculture to entitle it to a place in the transactions of the Society. It is expected that the essays will be founded mainly (and on scientific subjects, at least partly) on the writer's practical experience and personal observation or investigation, or on authenticated facts; and when other authorities are quoted, distinct reference must be made. The award of superiority to any one essay over others on the same subject, will be made in reference to its probable greater utility to agricultural improvement, as well as to the ability with which the subject is treated. In matters designed to instruct or to guide practical labors, clearness, and fullness of details will be deemed a high claim to merit, and next conciseness.

On motion of Mr. SARGENT, seconded by Mr. SMYTH, it was

Resolved, That the thanks of the United States Agricultural Society are presented to the Regents of the Smithsonian Institution, for their hospitable provision of accommodation for this meeting, and for the courteous attention shown by their officers.

On motion of Mr. WATSON, it was

Resolved, That the thanks of the Society are tendered to Hon. B. B. FRENCH, for the faithful manner in which he has acted as Treasurer during the past year, and that it is imperatively necessary that henceforth he should have the entire control of its finances, under the direction of the Executive Committee.

On motion of Mr. MYERS, it was

Resolved, That the thanks of this Society are hereby tendered to Major B. P. POORE, for the efficient and generous manner in which he has discharged the unremunerated duties of the office of Secretary through the past year.

Vice-President NEWTON having taken the chair, it was, on motion of Mr. SMYTH,

Resolved, That the thanks of this Society be presented to President HUBBARD, for the interest which he has manifested in preserving our organization during the present crisis, and for the able and impartial manner in which he has presided over the present session.

And on motion of Mr. ARNY, the Society adjourned *sine die*.

AGRICULTURE OF THE ANCIENTS.

Agricultural literature occupied a far higher position among the ancients than it has hitherto attained in our day. A mere enumeration of the names of those authors whose works remain, and the testimony which many of them bear to the merits of Mago the Carthaginian, whom they declare to have been the father of agricultural literature, will leave no doubt on the question of precedence. To Hesiod, Theophrastus, Xenophon, Cato, Varro, Virgil, Columella, Pliny, and Palladius, whom have we to oppose? A few notices of agriculture may be found in Lord Bacon's works, and Sir H. Davy wrote an agricultural book, which was by no means one of his most successful efforts; and here, as far as we know, our first class must end abruptly. We are not insensible to the merits of Arthur Young and Jethro Tull, but we can hardly put them on a par with Cato and Pliny; and we doubt whether we could not even now farm more successfully by following the directions of the two ancients than of the two moderns. We have a few pastoral and bucolic poets to whom we must oppose Theocritus and Homer, who are not included in our former list, and who are infinitely superior to any of them, with the single exception of Hogg, as practical shepherds, neat-herds, and swine-herds. Nor is a study of these old writers a mere matter of fancy. We could take up almost any one of them and begin with him the agricultural year—prepare the field—sow the crop—weed it—reap it—harvest it—thresh and winnow it—ascertain the weight per bushel, and the yield in flour or meal—market it—buy, feed, clothe, and lodge the agricultural slaves—purchase, rear, and sell the cattle and fowls—collect and prepare the

manure—and make out, at the end of the year, a more accurate balance-sheet than could be furnished by half the farmers in Great Britain, or by one-fourth of those in the United States.

Our knowledge of Egyptian agriculture has not only been confirmed, but also very much enlarged, of late years. The notices of it which occur in Diodorus, Strabo, Pliny, Plutarch, and other writers, have been brought together by Sir Gardner Wilkinson in the first volume of the second series of his "Manners and Customs of the Ancient Egyptians." They receive a most interesting illustration from the drawings which this distinguished traveler and his fellow-laborers have brought to light from the tombs. Not only is the manner in which these men of old performed the operations of husbandry placed strikingly before our eyes, but we are admitted at once into the penetralia of the economical, and, we might almost say, the moral management of a farm. owner, attended by his faithful dog, watches the work; the scribe or The clerk, with his desk and double stand, containing black and red ink, receives and records the tale of corn, cattle, poultry, and even eggs; the laboring men and beasts plough, sow, reap, thresh, winnow, are rewarded and punished; and, finally, the despised neat-herd leads before us an ox, one of Pharaoh's fattest kine, whose fair proportions are, no doubt, intended to be a satire on the deformity of his attendant. Our enumeration contains less than one-half of what is vividly portrayed. Sir Gardner, intimately acquainted with present Egypt, traces in many instances the analogy which exists between ancient and modern practice. Most of our readers are probably acquainted with his work; those who are not have a rich treat in store.

We now despatch, in a few sentences, the little information which we have been able to gather on Grecian and Carthaginian agriculture. Though Attica was arid, Laconia swampy, Megara rocky, and Corinth dependent on importation for a supply of food, the art of the husbandman was not without its literature. Pliny laments over forty Greek treatises on agriculture which were lost in his day; and Columella reckons them at fifty. The pursuit may not have been held in high esteem, but its operations were certainly familiar to the educated class. Hesiod was strictly an agricultural writer; and the allusions to farming operations in Homer and Theocritus are definite, and entirely practical. Eubœus, *σὺβωτης ορχαμος ἄνδρων*, is no fanciful swine-herd; and, however ideal the ditties of Lycidas and Thyrsis may be, their shepherding is quite real. In the passage relating to the capture of Dolon, Hector's spy, Pope, following Madame Dacier, has made a sad hash of a simile which is perfectly plain to those who understand the proprieties of ploughing. In the agricultural compartment of Achilles' shield, we see before us no poetical field, but a deep loamy fallow, the texture and color of which indicate that it is receiving its third furrow; and in the crop of grain which is falling before the sickle, we have an accurate division of labor which a Norfolk farmer might do well to imitate:—

*βασιλευς δ' ἐν τοις σιωπῃ,
σκηπτρον ἔχων, ἑστηκεὶ ἐπ' οἴμου γηθοσυνος κηρ.*

This must have been in the palmy days of protection. Probably few

of our living poets would be capable of giving, and as few of their readers of appreciating, so detailed an account of the simplest farming operations. These notices of agriculture in Herodotus and Thucydides are only incidental; but a work by Theophrastus, which has descended to us, is by no means, as Mr. Hoskyns intimates, a mere "botanical catalogue of plants." It contains many useful practical directions, and frequently discriminates, with much accuracy, between the modes of husbandry suited to different countries and climates.

Xenophon is said to have bought and occupied a farm near Smyrna, where he wrote the agricultural treatise commonly called his *Oeconomicus*, and which is frequently appended to the *Memorabilia*. It treats of farming, gardening, and household management, under which last head it gives valuable instructions for the government of wives. Cicero praises this treatise highly. It contains the passage in which Cyrus the younger exhibits himself to Lysander as "The Persian Farmer;" "ut intelligatis," says Cicero, "nihil ei tam regale videri quam studium agricolendi."

The few notices which we possess of Carthaginian agriculture are singular, and scarcely reconcilable with each other. Heeren reckons the fertile provinces of Carthage in Africa to have been about equal in area to Ireland; and divides the remainder of their African territory between Nomad tribes and Lotophagi. It appears from Diodorus, Polybius, and Strabo, that the Carthaginians received large supplies of grain from Sardinia and Sicily. Heeren, of whose research and judgment it would be impossible to speak too highly, says:

"The foreign colonies of Carthage were always chosen for the purposes of commerce; but those within her own territory were, at least for the most part, inland, and fixed upon for the promotion of agriculture. * * * It was a general principle of Carthaginian policy to improve, as much as possible, the cultivation of their lands, and to accustom the native tribes under their subjection to do the same. * * * They, in fact, appear to have attached more importance to agriculture than to commerce. * * * It is plain that families of the first rank were in possession of large estates, from whose produce they drew their income; while on the contrary, there is not a single trace, in the whole history of the republic, of their being concerned in trade."

It is difficult to reconcile these opinions of Heeren's with Cicero's statement that a preference for trade and navigation, and a neglect of agriculture and arms, were the main causes of the weakness of Carthage. The modern, however, derives much support from indisputable facts relating to Carthaginian literature. Kings, or perhaps presidents, but at all events great generals, were among their agricultural writers. "Mago, the Carthaginian, and Hamilcar (says Columella) held it not beneath their dignity, when they were unoccupied by war, to contribute by treatises on farming their quota towards human life." We learn from several sources that the books of Mago on agriculture amounted to twenty-eight; that they were translated into Greek by Cassius Dionysius of Utica; that on the final destruction of Carthage, when the whole literature of the conquered nation was given over by the Romans to their African allies, these twenty-eight treatises were considered so

valuable, that they were specially excepted, brought to Rome, and by the senate ordered to be translated at the public expense. Pliny says that D. Silanus, belonging to one of the first families, surpassed the other translators. They are treated as of great authority by Varro, Columella, Palladius, and Pliny; and in the appendix to Heeren will be found thirty-one distinct passages in which the maxims of the Carthaginian author are handed down to us. It is singular enough that no one of these passages has any reference to the cultivation of any species of grain. One passage gives directions for the grinding or pounding of maize, barley, lentils, vetches, and sesame. Another strongly recommends landed proprietors to be resident—"He to whom an abode in the city lies close at heart, has no need of a country estate." The directions for culture apply solely to vines, olives, the nut tribe, poplars, and reeds. We unfortunately do not learn the structure of his humanity hives, but it appears that he disapproved of destroying the bees when the honey was taken. Columella vouches, on personal experience, for the excellence of the Punic receipt for making the very best wine, "*passum optimum*." Farriery, (including the symptoms of broken-wind in horses, and a prescription,) a critical operation to which male animals are subjected, and the gestation of mares and female mules, are all brought under review; and we have the astounding statement, that in Africa the latter females were nearly as prolific as the former. This is more surprising, because Cato—who died before his "*Delenda est Carthago*" was fulfilled, and accordingly shows no acquaintance with Mago's writings—makes the same assertion. "Upon the health of black cattle," says Varro, "I have borrowed a good deal from the books of Mago, which I made my herdsmen carefully read." And not only does the Carthaginian treat of the health of cattle, but he gives directions for buying oxen for the plough, so precise that they will perhaps interest our readers:—

"The young oxen which we buy should be square in their form, large limbed, with strong, lofty, and dark-coloured horns, broad and curly fronts, rough ears, black eyes and lips, prominent and expanded nostrils, long and brawny neck, ample dewlaps pendant nearly to the knees, a wide chest and large shoulders, roomy-bellied, with well-bowed ribs, broad on the loin, with a straight, level, or even slightly-depressed back, round buttock, straight and firm legs by no means weak in the knee, large hoofs, very long and bushy tails, the body covered with thick short hair of a red or tawny colour, and they should be very soft handlers (*tactu corporeis mollissimo*)."

Palladius gives directions in nearly the same words, without, however, intimating that he derived them from Mago—a very tidy ox, whether he be purchased in Libya in the year B. C. 600, or in Northamptonshire A.D. 1850. More than one Mago figures in Carthaginian history, but the agricultural writer is supposed to have lived in the time of Darius, and to have been the founder of the great Punic family from which Hannibal sprang.

Of the Roman agricultural writers Cato claims precedence as first in time, and first in honour. The Censor died, aged 88, in the year 150 B. C. He is treated with great deference, and is much copied by most

succeeding authors on the same subjects. He was a practical husbandman, having inherited from his father a Sabine farm. In his writings he recommends careful and precise, but by no means high farming. Most of his maxims tend rather to a limitation of outlay than to active improvement; and he falls under the lash of Plutarch, for having heartlessly recommended the sale of worn-out oxen and slaves.

Two Sasernas (father and son) lived between the time of Cato and Varro, and wrote on agriculture. Their works have not descended to us; but they are quoted as of acknowledged authority by all the succeeding writers.

Varro, "Romanorum doctissimus," lived through nearly the whole century which immediately preceded the Christian era. He was one of Pompey's generals and admirals, and was subsequently librarian both to Julius and to Augustus Cæsar. His own very valuable library was wantonly destroyed by Anthony. He was a very voluminous writer, but a philological treatise, and his "*De Re Rusticâ*" are all that remain to us. The latter work was written when he was eighty years of age, and is in the form of a dialogue. It is in three parts, and is dedicated to his wife. He was a practical agriculturist, and frequently refers to the operations on his own farm, but he relies principally on the authority of Mago, and some Greek writers. The work is by no means servilely rustic, but diverges from time to time into mythology and ethics.

Some fascinating sentences in the "*De Senectute*" hardly warrant our placing Cicero among the agricultural writers. Though they display some practical knowledge, they relate rather to the amenities than to the labors of husbandry. In his opinion "*vita rustica parsimoniæ, diligentiae, justitiæ, magistra est*" (*Pro Rosc.*); "*aratores*" are "*id genus hominum quod optimum atque honestissimum est.*" (*In Verr.* 2.) Agriculture, with him, is rather an honor to princes, and the ornament and solace of declining age, than a painful struggle with thorns and thistles brought forth by the ground, which yields bread to man "in sorrow" and in the "sweat of his face."

Of the *Georgics* we need only say, that they afford not the least striking instance of the exquisite skill with which the Roman poet could borrow more than a foundation, and rear on it a structure possessing all the charms of originality. Perhaps, none but an agricultural reader will fully perceive the perfect harmony which is maintained in the *Georgics* between the imagination of the poet, and the homely science of the farmer. The two characters never clash. Whenever the farmer comes on the scene—however smooth the verse and elegant the diction—the directions which he gives are precise, ample, practical, and sound. The poem becomes a hand-book of husbandry. Virgil (born B. C. 70) succeeds Varro in the catalogue of agricultural authors.

Columella usually personates the classics of agriculture and horticulture, to our imagination: partly, perhaps, because his works have come to us nearly entire and in large volumes; but principally, we think, because we know him merely as an agricultural writer, whereas most of his rivals or coadjutors are familiar to us as kings, generals, statesmen, orators, philosophers, or poets. He was a Spaniard, and

apparently born about the time of the Christian era. He occupied a Pyrenean farm, and speaks more largely of his success in cultivating the vine than in any other department of husbandry. He introduces to us an uncle of his own name as an eminent flock-master, who much improved his sheep by introducing rams from Africa. We suspect that on this statement is founded the popular opinion, that Columella established the Merino sheep in Spain. Columella makes free use of the agricultural writers who preceded him, particularly of Mago, to whose authority he submits with willing deference. Among the latin authors whom he cites with respect, is Julius Græcinus, the father of Agricola. Columella's work is divided into twelve books—two on farming and farm-premises—but which contain also some directions, partly moral and partly physical, on the selection and management of agricultural slaves: three on the vine, olive, and orchard fruits—two on agricultural and domestic animals, from which, on prudential grounds, he excludes the sporting-dog—one on poultry—one on bees. In the 9th book he attempts, with small success, the supplement to the Georgics, which Virgil indicated :

“ Verum hæc ipse equidem spatiis inclusus iniquis
Prætereo, atque aliis post me memoranda relinquo,”

and breaks into verse on the subject of gardening. Three more books treat of the bailiff, his wife, wine, vinegar, jampots. and the kitchen garden.

Pliny died A. D. 79. His contributions to the agricultural library are a small portion of the great work which he has left as a monument of his industry and research. We have no reason to suppose that he had any personal knowledge of agriculture. He was, in that instance, as in many others, a diligent, but not always a discriminating, compiler. Of the elder authors, to whose own works we can still refer, he uses, most freely, Mago, Cato, Varro, and Virgil. He speaks of Columella, but, for the most part, slightly.

Palladius published A. D. 355. He was a landed proprietor in Sardinia, and also near Naples. He wrote fourteen books of a farmer's calendar, and a poem on the art of grafting. He seems to have been rather a servile copyist from the older writers, but his work was much esteemed in the middle ages, and was translated into English, in 1803, by Thomas Owen.

Thus, we have before us a series of literature, devoted to one object, extending over eight, and, in the Roman department alone, over five centuries. No one can wade through the whole mass without observing the striking fact, that neither at the end, nor during any part, of the series, does agriculture present itself as a progressive art. We are introduced to no improvements, to no newly-invented implements; we are told of no practices abandoned as obsolete or superseded. We find, with the single exception of lucerne, (and perhaps cytissus,) no new object of culture. From Cato to Palladius the same routine is prescribed, and generally in the same terms. Their most refined practices—those in which they made the nearest approach to a successful application of mechanical power—may be traced in the historical books of the Old Testament, and in the prophets. We encounter a few pru-

dential and very cautious maxims about trying experiments; but we are told of no fruit, (if there be an exception, it is in the case of vineyards;) and as we work down the series we meet with increasing complaints of diminished produce and declining profits. The characteristics of Roman agriculture, as described in the books, were—system, accuracy, and great vigilance against waste. It was careful, painstaking, garden-like farming, with very few artificial or adventitious aids. We exclude, altogether, from our consideration the degraded period when Roman farms were screwed down to 4 acres (7 jugera) apiece. This state of things—if, indeed, it ever existed—was social, not agricultural. The story of Attilius Regulus, who, having heard—while he was pursuing a career of conquest in Africa—that the bailiff of his 4-acre estate was dead, and that his farming slave had run away, immediately sent to the senate a catalogue of his spades, hoes, rakes, and spuds, and informed them that unless they took these implements into their special care, and procured for him another bailiff and another slave, he should leave the command of the army and come home to look after his property, is very amusing, but is of no agricultural import. But, when the Romans got wiser, in our estimation, though worse, perhaps, in that of M. Louis Blanc, farms took the size which was adapted to the convenience of culture. Farming, which was carried on without expensive implements, and without powerful machinery, did not offer the inducements which now exist to large holdings. Probably $62\frac{1}{2}$ acres (1 plough,) or 125 acres (2 ploughs) of arable land, could be cultivated as economically as a larger breadth.

Before we describe the Roman course of culture, we must say a few words on their system of occupation. In this we find a progressive change, and a constant approximation to modern practice. The first definite accounts represent proprietors residing on their own lands, and joining personally in all the labors of agriculture. Called off from time to time to war, or counsel, when the demand for their public services ceased, they returned to their homely occupation. Before the time of Cato, however, the habitual residence of the proprietor had become more rare. The claims or the attractions of Rome and other cities prevailed, and the farmhouse (villa) was delivered over to the custody of the bailiff (villicus); pleasant and even luxurious apartments being reserved for the occasional occupation of the owner. Cato gives directions suited to this state of things, of which Varro and Columella make whining complaints, intimating that, in their day, Roman landholders were more inclined to hold up their hands in the circus, and theatre, than to apply them to the plough and pruning hook. Though one passage from Cato is rather long, we hope that those of our readers who are acquainted with it will not be sorry to have it brought back to their recollection; and that those who are not will be interested by it as we have been ourselves:

“When the proprietor arrives at the villa, and has paid his respects to the household gods, he should, if he possibly can, go round his farm on that day; if he cannot do that, certainly on the next. When he has completed his own inspection, on the morrow he should have up his bailiff, and inquire of him what work has been done, and

what remains to be done—whether the work is sufficiently forward, and whether what remains can be got through in due season—what has been done about the wine, corn, and all other matters. When he has made himself acquainted with these things, he should then compare the work done with the number of days. If work enough does not seem to have been done, the bailiff will say that he has been very diligent—that the slaves could not do any more—that the weather has been bad—that slaves skulked—that they have been taken off to public work. When the bailiff has given these, and many other, reasons, bring him back to the actual details of work done. If he reports rainy weather, ascertain for how many days it lasted, and inquire what they were all about during the rain. Casks might be washed and pitched, the farmhouse cleaned, corn turned, the cattle-sheds cleaned out and a dung-heap made, seed dressed, old ropes mended, and new ones made; the family might mend their cloaks and hoods. On public holidays old ditches might have been scoured, the highway repaired, briars cut, the garden dug, twigs kidded, the meadow cleared, thistles pulled, grain (far) pounded, and everything made tidy. When the slaves have been sick they ought not to have had so much food. When these matters are pretty well cleared up, let him take effectual care that the work which remains to be done, *shall be done*. Then he should go into the money account, and the corn account; examine what has been bought in the way of food. Next, he should see what wine and oil have come into store, and what have been consumed, what is left, and how much can be sold. If a good account is given of these things, let it be taken as settled. All other articles should be looked into, that if anything is wanted for the year's consumption it may be bought; if there is any surplus it may be sold; and that any matters which want arrangement may be arranged. He should give orders about any work to be done, and leave them in writing. He should look over his cattle with a view to a sale. He should sell any spare wine, oil, and corn, if the price suits. He should sell old work-oxen, and culls, both cattle and sheep; wool and hides, old carts and old iron implements; *any old and diseased slave*; and anything else which he can spare. A proprietor should be seeking to sell rather than to buy."

Cato would have been invaluable as master of a workhouse.

The next phase of occupation was called "Politio." The politar or partuarius was a resident working partner, bringing no capital into the concern, but receiving, as his remuneration, a stipulated share of the produce. His proportion of grain varied from one-ninth in the best land, to one-fifth in the most sterile. An elaborate calculation leads to the conclusion that, on an arable farm of 125 acres, a politar would receive from 30 to 35 qrs. of various kinds of grain as his share; but the information does not seem to be of much value, as we are ignorant what privileges of maintenance, for himself or his family, he received from the produce of the farm. It is difficult to ascertain the exact terms of partnership; but it appears that the course of husbandry to be pursued was prescribed by them.

"Liberi Coloni"—i. e. farmers paying rent and cultivating wholly

on their own account—first appear in the pages of Columella; and in a passage too long to extract, he discusses the pros and cons of this mode of occupation. He comes to this general conclusion, that a farm never produces so much as when it is occupied by the proprietor: that even under a bailiff, unless he is very rapacious, (and taking that word as his text, he enumerates the various modes in which a bailiff can cheat,) it will produce more than under the hands of a tenant; but if it be of that sort on which a tenant cannot commit very great waste, is distant, and not easily accessible to the owner, in that case it had better be let. His rules for the management of tenants are so applicable to all times, that we cannot curtail them:

“A landlord ought to treat his tenant with gentleness, should show himself not difficult to please, and be more rigorous in exacting culture than rent; because this is less severe, and upon the whole more advantageous; for when land is carefully cultivated, it for the most part brings profit, never loss, except when assaulted by a storm or pillagers; and therefore the farmer cannot have the assurance to ask any ease of his rent. Neither should the landlord be very tenacious in his right in everything to which the tenant is bound, particularly as to days of payment * * * On the other hand, the landlord ought not to be entirely negligent in this matter, for it is certainly true, as Alpheus the usurer used to say, that good debts become bad ones by being not called for. I remember to have heard it asserted by Lucius Volusius, an old rich man, who had been consul, that that estate was most advantageous to the landlord, which was cultivated by farmers born upon the land; for those are attached to it by a strong habit from their cradles. So indeed it is my opinion, that the frequent letting of a farm is a bad thing; however, it is still worse to let one to a farmer who lives in town, and chooses rather to cultivate it by servants than by himself. Saserna used to say, that from such a farm a lawsuit was got in place of rent.”

The younger Pliny, in a letter to Calvisius Rufus, discusses the desirableness of purchasing an estate which had been offered to him. He states that it was very much worn out, and was consequently offered to him at a much lower price than that for which it had previously been sold; that it would be necessary to displace the tenants, who were without capital, and had been repeatedly distrained and sold up; and that the investment would pay him 4 per cent., the usual interest on loans being at that period 6 per cent. The standard agricultural sentence about bad times, “*communi temporis iniquitate*,” occurs in Pliny’s letter.

We grumble by prescriptive right. Pliny, the ever self-complacent orator, advocate, senator, and poet, is a most discontented landowner. His farms are a constant trouble to him:

“*To Naso*.—A storm of hail, I am informed, has destroyed all the produce of my estate in Tuscany; while that which I have on the other side the Po, though it has proved extremely faithful this season, yet, from the excessive cheapness of everything, turns to small account.”

“*To Genitor*.—Nor is this all; for not only the farmers claim a sort of prescription to try my patience as they please by their continual

complaints; but also the necessity of letting out my farm gives me much trouble, as it is exceedingly difficult to find proper tenants."

The desirable size for a farm is discussed by several of the writers and generally in the prudential spirit of Virgil's maxim :

"laudato ingentia rura,
Exiguum colito."

Columella prefaces the maxim—"That the farm ought to be weaker than the farmer"—by saying that it was "derived from the Carthaginians, who were a very acute people." Palladius says epigrammatically, "*fœcundior est culta exiguitas, quam magnitudo neglecta.*" But on this point Pliny is most diffuse—though we believe that Dickson erroneously interprets expressions which Pliny applied to ownership, and not to occupation. When he says—"sex domi semissen Africæ possidebant, cum interfecit eos Neo præceps"—we cannot suppose that half of the province was absorbed by what we should call six farms, and that the bailiffs of these six unfortunate gentlemen were the sole occupiers. He declares, however, by less equivocal expressions, that the ancients were of opinion that it was very desirable to limit the size of farms.* The stories which he tells have also the same tendency as the maxims which we have cited. For one we must find room and a translation :

"I cannot forbear stating one instance from old times, from which we may perceive both that questions of culture were brought judicially before the people, and also how men of that time were in the habit of defending themselves. C. Furius Cresinus, a freedman, became the object of much ill-feeling on the part of his neighbors, in consequence of his gathering from a very small field much more produce than they could obtain from very large ones. He was accused of attracting the crops from other fields by charms. Sp. Albinus appointed a court day to hear this charge; and Cresinus, fearing that he might be found guilty, when the tribe were about to pronounce their verdict, brought his live and dead farming stock into the forum; and he brought with him a stout wench, and Piso says that she was in good case and well clad. His iron implements were exceedingly well manufactured, the spades were strong, the shares powerful, and the oxen in high condition. Then he said, 'These, Romans, are my charms; but I cannot show you, or bring into the forum, my mental labors, my vigils, nor the sweat of my brow.'"

On the subject of farm-buildings it is difficult to gather much from these writers, principally because, as we have said, they were complicated with the villa, which was, as its name implies, the country abode of the landlord. On this point Cato forgets his usual frugality, and recommends comfort approaching to luxury, with a view of attracting and retaining the residence of the proprietor. Columella is very elaborate on this subject. In the first place, he is fastidious as to situation, both on the score of health and jucundity, and his only

* Nevertheless large arable farms were known to remote antiquity. It may not be safe to found on the numbers in the highly poetical and figurative book of Job; but we learn from a purely-historical statement in the book of Kings, that Elisha was ploughing with twelve yoke of oxen, himself with the twelfth. This, on the Roman computation of 60 odd acres to a plough, would make the prophet the occupier of arable land to the extent 800 acres.

prudential maxim is, that a villa should be situated some distance from a high road, as otherwise all your idle acquaintance will be dropping in upon you, and will very much interrupt the business of the farm. In giving the plan of the villa, he is very diffuse on the apartments of the proprietor, the winter apartments, the spring apartments, the summer apartments, and the bath-rooms; and on their respective aspects: the pleasure grounds come in also for a specific notice; but his directions for the "*Rustica*"—which include the kitchen, the servants' lodgings, and the stables—and the "*Fructuaria*," which comprise the oil-cellar and press-room, wine-cellar, hay-loft, granary, &c., are less precise and intelligible. Both Cato and Varro prescribe, in general terms, that the farm should not be too large for the villa, nor the villa for the farm, and point out the inconvenience of each excess; and both give instances of known parties by whom respectively each of these maxims has been transgressed. It is not, however, till we come to Palladius, in whose time tenant farming had become more usual, that we find any directions which are conformable to our notions of a farm-house and buildings. He says that the building ought to be proportioned to the value of the farm; and that, in case they were burnt down, the extreme sum allotted to rebuild them ought not to exceed two years' rent: a sum which in our climate would be very inadequate to fulfil our notions of improved agriculture.

From the earliest antiquity oxen seem to have furnished the moving power to the plough, though in a single passage, to which we have already alluded, Homer says that in heavy fallow mules are far preferable. As the Romans assigned 60 odd acres to each plough, they assigned to it also 3 laborers, a proportion which did not include vine-dressers, or those who were employed in olive and fruit orchards. A passage in Columella indicates that a portion of the laborers employed on a farm were "*soluti, quibus major est fides*;" but the bulk were slaves, and they were sometimes worked in fetters, "*alligati*." The younger Pliny says that he must let his land because he does not possess "*vinctos*." Cato and Columella prescribe that the ploughman should be tall, because he will preside with more power at the stilts; whereas short and strong-backed men can do stooping work with more ease. A *bubulcus* should be humane, but have a terrible voice, in order that by it the oxen may be urged to work without being much harassed by the whip or goad. Columella gives the singular direction, that if you have any particularly vicious men among your slaves, you should make them vine-dressers, because that work requires clever fellows, "*ac plerumque velocior est animus improborum hominum*." Tallness and strength are of importance in the *bubulcus*; but of none in the overlooker, who ought to be "*sedulus ac frugalissimus*." Cato gives a complete dietary for the establishment:

"For the bailiff 100 lbs. of wheat per month in winter; one-eighth more in summer.

"For the female housekeeper and shepherd, 75 lbs. each per month.

"For the slaves 4 lbs. of bread each per day in the winter.

"From the time they begin to dress the vineyard, 5 lbs. per day till they have figs, when they revert to 4 lbs."

In addition to this bread the slaves had a restricted allowance of an article called *pulmentarium*, which appears to have been a dry compound of olives, apples, pears, and figs. Pliny says that the name is derived from *puls*, which was the food of the ancient Romans—"pulte autem, non pane, vixisse longo tempore Romanos manifestum." When the *pulmentarium* was exhausted, they had in lieu an allowance of salt fish and vinegar, with a small portion of oil; and each person was allowed rather more than a peck of salt in the year. For three months after the vintage the beverage of the slaves was a weak wine called *lora*, in the consumption of which they were unrestricted. Columella and Pliny give the particulars of its manufacture, and Dickson supposes it to have been equal to small beer. For the rest of the year they had real wine, and, by a very elaborate calculation, Dickson makes out the daily ration to have amounted to rather more than a pint and a half English. We take all our quantities on trust from Dickson. Any person who is curious on the subject will find the data given at length in his work.

Cato, having fed his household, proceeds to clothe them. The passage is not very clear, but we take it to mean that each individual received a tunic (a jacket without sleeves) annually, and a *saga*, three and a half feet long (probably a smock frock) biennially; also a pair of good wooden clogs every second year. Cato prescribes, that before you serve out a new tunic or *saga*, you should receive the old one, to be used in the manufacture of *centones*—that is, rough cloaks of patchwork, serviceable also as bed-quilts. Ausonius in the preface to his *Cento* from Virgil, has many quaint allusions to the origin of the literary term.

We have said that the general tendency of these old writers is against *high farming*, by which we mean a large outlay with a view to increased produce. At the same time they are unanimous in their condemnation of slovenly and indolent farming. They prescribe a degree of accuracy and care which is certainly unknown in our general husbandry. This we shall see more fully when we come to speak of their course of culture. They insist on a most careful application of all the internal resources of the farm, and guard most anxiously against any neglect or waste of an article which may be used in reproduction; but there are very few indications of their having looked beyond the boundary fence for any means of augmenting the fertility of their lands. Cato's maxims all tend to repress outlay; and Pliny discusses the whole question in a passage which is too long to quote, but which is remarkable both for its sentiments and expressions. He brings forward, apparently with some hesitation, the unanimous opinion of the ancients, that (in plain English) nothing pays worse than high farming—"nihil minus expedire quam agrum optime colere." He gives an instance of a very rich man who ruined himself by farming for ostentation. He says there is a mean course, and he appears to intimate (though the passage is obscure) that a tenant, working himself and having a family which must be maintained, may do some things with profit which would be ruinous to a proprietor who lived at a distance, and hired the labor which was employed in doing them. He defends the ancients against

the charge of having recommended bad farming. He says that by their oracular expression, "bonis malis," they merely meant that you should do things well and cheap; a point at which we have been aiming all our lives, and have never hit it.

Having cleared away these preliminary matters, we will now accompany the Roman farmer into his arable lands, and into his meadows and pastures, and will describe the management which he applied to each. We will take the latter and shorter subject first. As to pasturing, the details are few; but it is a pursuit much commended by the writers, on the characteristic ground that it calls for little outlay. Columella reports Cato have answered the inquiry, how a man could get rich quickest by farming? "By being a good grazier." How next? "By being a middling grazier." "I regret," says Columella, "to add, that to the inquiry, repeated a third time, so wise a man should have replied, 'By being a bad grazier;'" though, as to his second answer, there can be no doubt that middling grazing is more profitable than the best management in any other line of agriculture. Pliny admits the two first responses to be genuine, but snubs Columella by discrediting the third. He says that Cato's purpose was to inculcate that we should depend most on those returns which were got at the least expense. Meadows are included in the same category of commendation. All the writers agree that they were called by the ancients, "prata quasi parata," as being always ready to produce without culture. If you have water, says Cato, make water meadows, rather than anything. If you have no water, make dry meadows to the utmost extent you can. Minute directions are given for passing the water slowing and evenly over the land, without allowing it to stagnate. Too much water is said to be as objectionable as too little. "No doubt," says Columella, "the natural grass which a rich upland produces will make finer hay than any which you get by watering; but from thin land, whether it is stiff or light, watering is the only way in which you can get a crop. Pliny particularly recommends to turn over your meadows any water which runs from a highway. Columella and Palladius gave precise instructions for renewing hassocky and mossy meadows by the plough. You will get fine corn crops from them after their long rest—"post longam desidi-
diam." They are to be ploughed and well summer-worked, and sown in autumn with turnips or beans, and the next year with corn. In the third year they are to be very carefully worked till every weed and root is extirpated, and then sown with vetches and hay-seeds, (the hay-seeds, says Pliny, may be collected in the haylofts and mangers,) and the vetches are not to be cut till they have shed a part of the seed. The land must be worked quite fine and even with hoes and clod-crushers, so as to break down everything which might be an impediment to the scythe. The water is then to be laid on, but very gently if the surface is loose, because a force of water would wash the soil from the roots of the grass, and hinder them from making a strong turf. For the same reason you must not permit the new-sown grass to be trod by cattle. In the second year, if the ground is dry enough, small cattle may be admitted after the hay is cut; and if it has become very firm, the larger cattle in the third. If you wish for a full crop of hay, you must clear

your early and weak meadows of cattle in January. Lands less subject to burn may be pastured till February or March. The manure, which should be the greenest you have, "*recentissimum*," and which may with advantage have hay seeds mixed with it, should be laid in February on such parts of the meadow as cannot be watered. It seems probable that the majority of Roman meadows were ill-drained, so much stress is laid on the evil of treading them with cattle. Pigs also were interdicted, on account of their rooting propensities. M. Porcius is brought forward to testify to the value of meadows. They are less subject to injury by storms than any other part of the farm; they require the least expenditure; they give a crop every year, and, indeed, more than one, for the pasturage of the aftermath is of as much value as the hay. The Campus Rosea is said to have been the most valuable plot of land in Italy. We had hoped, and indeed believed, that the story of the stick was genuine Leicestershire; but Cæsar Vopiscus, the ædile, is produced both by Varro and Pliny, to vouch that in that celebrated field he laid down his stick overnight, and could not find it in the morning, because it was smothered in grass. The time which we claim, however, on behalf of Cestus Over is not a whole night, but only while the farmer ate his dinner and smoked one pipe.

The Romans frequently mowed their meadows twice, first in May, and secondly in August or September, and watered them between the mowings. They mixed the second crop with oak and elm leaves, and used it as fodder for sheep. Dickson calculates, on somewhat uncertain grounds, that the first mowing of a Roman meadow produced more than two and a half tons of hay to the statute acre. That the crops were large appears probable. To mow a jugerum, three-fifths of a statute acre in a day, is said to require a good workman, whereas an ordinary laborer now-a-days reckons an acre to be a day's work. All the writers prescribe that the grass should be cut before the seed is ripe, and before the stalk has become dry. Pliny boasts of a discovery of whetstones, which would sharpen a scythe with water; whereas the Cretan whetstones, which alone were known to their ancestors, would only sharpen with oil, in consequence of which every mower had a horn of that liniment tied to his leg. The Italians used short, the Gauls long scythes. Every maxim of English, and even of Scotch haymaking is diligently set forth: precautions against rain, against undersweating, and overheating. Pliny supposes that when hay is got too green the sun sets the ricks on fire. We have by no means exhausted the subject; but

"Claudite jam rivos; forsan sat prata biberunt."

The Roman agricultural course, with the partial exceptions to which we shall have occasion to advert, was of the simplest possible description—a crop of grain and a fallow. Every year one-half of the arable land was in grain, one-half in fallow. One-third of the fallow was sown with some sort of green crop to be mowed for the cattle, and this portion of the fallow, and this alone, was manured; the result being that the arable land was manured once in six years, and in that period bore three grain crops and one green crop. This we should bear in mind when we come to consider what effect long perseverance in this course had on production. The naked fallow received three or four

ploughings during the summer, besides the seed furrow. To sow the grain in the autumn was considered to be far the best practice; but any portion of the land which, from bad weather or other impediments, could not be completed in the autumn, was sown in the spring. The grain was wheat or barley. The wheat was of many varieties; white, red, black, bearded, and smooth are expressly mentioned; and these do not exhaust the catalogue of names. Some are said to be suited to free and dry, others to strong and moist land. Siligo, triticum, and far adorum appear to have been favorite sorts; and the two first varieties cannot have been very far removed, if Pliny's statement, that siligo sown on certain lands for three years turns into triticum, be correct. He, however, starting with the maxim that no book is so bad that something may not be learned from it, picks up a good many loose stories, and he is, if we remember right, the author who vouches that if oats be sown on a certain day of the moon, they will come up barley. Of barley there were several varieties, both in color and form of the grain—"longius leviusque, aut brevius, aut rotundius, candidius, nigrius, vel cui purpura est"—of which Pliny says that the white was least able to stand bad weather. All the authors agree that barley prospers only in a free and dry soil. It was sown in September and October, and again from January to March. Spring sowing appears to be less condemned in the case of barley than of wheat.

The mode of sowing grain affords, perhaps, the most marked distinction between Roman and modern practice. The system was twofold. The land was well reduced by the *irpea*, which was our harrow, and was used both for pulverization and for drawing weeds to the surface, and by the *crates*, which was an implement for crushing clods. Both these were worked by oxen. If the land were naturally dry, it was next drawn into ridges (similar, probably, to our turnip ridges) by a double mould-board plough. The seed was then sown by hand broadcast on these ridges, and the major part, of course, settled into the furrows. It was then covered by hand with *rastra*—i. e., rakes—and lightly, for the ridges certainly were not obliterated. They are always spoken of as a beneficial defense against drought to the corn growing on dry land. If the land to be sown were moist, so that injury to the crop from wet might be apprehended, the seed was scattered on the reduced and level surface, and, the double mould-board plough being introduced, by its operation most of the seed was covered up in the ridge. Several of the writers say that he was a clumsy ploughman who required an *occator* to follow him for the purpose of covering any portion of the seed. The result of both modes of sowing was that the corn came up in rows, separated by a considerable interval; so considerable, indeed, that it was not unusual to plough between them after the corn had grown to some height. Dickson and Tull differ as to the meaning of the word *occatio*, and as to the operation which it indicates. Probably they were acquainted with passages in which Varro and Verrius derive the word from *occœdere*, but neither of them seems to have been aware that a passage in the "De Senectute" completely settles the point: "quæ (sc. terra) semen occœcatum," covered up—put out of sight, "cohibet, ex quo occatio (quæ hoc efficit) nominata est."

After this covering of the seed the land remained quiet till wheat had put out its fourth, and barley its fifth, blade. It then received its first hoeing, (*sarritio*), which in dry land included what we should call earthing up; in moist land, where the corn was already on a ridge, the operation was simple hoeing. A second hoeing was given in the spring. These two hoeings were the universal practice, and a third and fourth are spoken of. Even the careful Cato is inclined to think that more than two hoeings may be given with advantage. Then followed hand-weeding, (*runcatio*), which in the prickly plants was performed with a glove—"velatâ manu debet runcari." Pliny tells a curious story about the origin of the still further operation of ploughing between the rows of corn. In the course of a *razzia*, which seems to have taken place in spring or early summer, the Salassi easily destroyed the winter-sown crops of their enemies. But the panic and millet, which were only just coming up, were not susceptible of the same sort of injury. They were, therefore, ploughed in. As, however, the crops recovered, and proved unusually abundant, husbandmen adopted the practice of ploughing among their corn, either when the spike was just showing itself, or when it had put forth two or three leaves; probably about the stage which we call spindling.

The whole operation of growing a crop of wheat or barley was, as respects two-thirds of the crop, as follows: A bare fallow extending from June (the time of harvest) to the September in the following year; four or more ploughings, and efficient breaking down by harrows and other implements; two or more hoeings and a hand-weeding. This is represented to have been ordinary practice, and the maxims are in conformity. "He," says Columella, "appears to me to be the very worst of farmers who allows weeds to grow among his crops. The produce must be exceedingly diminished if weeding is neglected." On this point we must let Dickson speak for himself. "When we consider how frequently, in the ancient husbandry, the land was fallowed, how frequently and at what seasons the fallow was ploughed, we are apt to imagine that there would be very little necessity for weeding; and yet the care of the Roman farmers in this article seems to exceed their care in every other thing." Weeds, however, were not the only objects of the hoeings. The ancients considered that the growth of corn was much promoted by stirring the ground. One, or frequently two, of the four ploughings having been given to the bare portion of the fallow-break before winter, a larger proportion of the force of the farm could be devoted to the land which was sown with crops to be mown green for the cattle. Day by day it was ploughed down as mown, a point on which the writers insist very strongly, and it appears to have received the same culture which we have described above. The fallow-break was called *vervactum*. In addition to these ordinary corn lands they had a small proportion which they called *restibilis*, as being capable of great endurance; land which had qualities analogous to those possessed by a horse which can go at a great pace and stay at it; or by a vocalist who can hold a note for an indefinite period. This land bore a crop every year. Pliny speaks of land which was so kindly that the crop smothered everything, and required no weeding;

and Cato says, that as soon as the corn was cleared off, this land might be sown with vetches on a single furrow without manure, that it might be pastured down in December, and would yield an undiminished crop in spring. Lands which had rested long, or were fresh brought into cultivation, were called *novalia*, and were subjected to a severer course of cropping than the old tilled land. Barley was considered to be a severer crop than any other. This epitome of grain-growing, as practiced by the Romans, was applicable not only to Italy, but certainly to Sicily, to Spain, to the province which they called Africa, and probably to other southern provinces. Particular notices occur of parts of Syria and of Egypt, and Mesopotamia, where inundations made all the land restibilis. Practices, to which we shall briefly refer, are spoken of, by Pliny, as prevalent in Gaul and Britain, which are represented to have been grain-exporting provinces.

We must lump together in one sentence the various herbs which were cultivated by the Romans as green food for cattle; and we regret that we can give so little information respecting them. Cicer—pulse of some kind—*unde* Cicero—Ervum, often coupled with Cicer—Farrago, probably mixed corn to be mown green—Ocimum, of which all we know is, that Pliny says it was supposed to flourish most when sown with cursing and railing—Vicia, vetch—Cytisum—(remembering the word in Virgil's first Eclogue, we turned to the commentary and found this explanation): "Genus fruticis sive herbæ cujus species multiplex, et descriptio apud diversos diversissima:"—Lentils, lupines, fenu-greek, *pisum*, peas, *faba*. The Romans cultivated more than one sort of bean, and probably this *faba*, which was mown green for fodder, was the kidney bean. Cato leads the way with most minute directions for sowing these green meats, and is followed by the other authors. The first crop to be put in as soon as the corn is off the land: this will be ready for autumnal mowing; and two or three succession crops to last for the remainder of the year.

To the Medica—probably lucerne—Dickson devotes a chapter, and we must devote a sentence. Though Pliny says that it was brought into Greece "a Medis per bella Persarum, quæ Darius intulit," it appears to have been unknown to Cato and to Varro as an object of Roman culture. Virgil mentions it once as being sown at the vernal equinox, and as requiring very rich land. Columella, Pliny, and Palladius are full of its merits. The sum of their praises is—that one sowing lasts ten (Pliny says thirty) years; that it may be mown from four to six times annually; that it fattens lean, and cures sick cattle; that it enriches land; and that the produce of three-fifths of a statute acre will abundantly maintain three horses for a whole year. These statements appear to some modern agricultural writers marvelous or miraculous. We believe, however, that, bating the thirty years and the enriching land, they are constantly equaled now a-days in the fertile island of Jersey. Beans were considered a very valuable crop, and were subjected to very careful cultivation.

Hemp, flax, poppy, panic, and millet, were Roman crops; but we fancy only incidentally and in by-corners, and not in any regular

course of culture.* *Legum* or *legumen* did not imply a class of plants; but all crops which were pulled up by the root instead of being cut by sickle or scythe. Hence, beans, peas, flax, hemp, &c., are spoken of as *legum* as well as turnip, rape, and radish. On turnips the later authors are diffuse, but we must be concise. Pliny declares that no crop is so valuable except grapes and corn; that they are most wholesome food for man, and excellent, dressed in a variety of ways; that they keep through the year, either pitted, or when mixed with mustard; that they are most valuable in ornamental cookery, as capable of receiving six colours besides their own, one of the colours being purple—a quality possessed by no other kind of food; that when boiled they will feed fowls, and that the leaves are good for cattle; and finally, that he has seen one 40 lbs. weight. Columella says that in Gaul the bulbs are used as winter food for cattle and sheep. As to culture, the Romans sowed the best sort of turnip after five ploughings on dry and free land, in rows well manured; thinned then to eight inches asunder; and, like us, were very much plagued by the fly, (*culex*) which they combated with soot, steeped seed, and other remedies similar to our own, and probably about as effectual.

Many passages occur in the writers, which, taken singly, appear to indicate a strong opinion on their part, that whereas some crops exhausted, others improved the land. Probably, however, the majority of these passages have reference to a practice which was very prevalent in their agriculture, namely, sowing vetches, beans, and more especially lupines, for the purpose of ploughing them in when they began to form seeds. By the writers generally more benefit is attributed to this practice than modern experience would appear to justify. It is true that in the Roman course of a crop and a fallow no time was lost by it. The opinion also that some crops, even when gathered, improved the land, did prevail—for Columella, who strongly advocates the ploughing-in system, thinks it necessary to combat it:—

“Some tell us that a crop of beans stand in the place of a manuring to the land—which opinion I would interpret thus; not that one can make the land richer by sowing them, but that this crop will exhaust it less than some others. For of this I am certain, that land which has had nothing on it will produce more corn than that which has borne these pulse in the preceding year.”

An opinion in which we cordially coincide.

Roman harvesting presents several variations from modern practices. In some cases the ears of the standing corn were gathered by a sort of comb, cut off, and carried to the thrashing floor—the straw being cut by a subsequent operation. The mode in which this was done is accurately described by the writers, and is vividly portrayed in the drawings from the Egyptian tombs. This plan is said to have answered well in thin crops, but to have been troublesome when they were heavy; it would no doubt be still more so when they were laid and twisted. In other cases the corn was cut low, and having been

* Flax is universally condemned by the writers as an exhausting crop. Pliny, however, enters largely not only into its cultivation, but into the mode of steeping and dressing it, and into its manufacture into fine linen, sail-cloth, candle-wicks, fish-nets, and snares for wild boars. He says that each thread in a then extant breast-plate of Amasis, king of Egypt, consisted of 365 ply.

gathered together, was passed through combs or hackles, which detained the ears. These being cut off, were carried away separately in wicker-baskets. Pliny remarks, that both these modes are favourable to straw which is to be used for thatching. About Rome the corn was cut in the middle by a sickle. Varro is of opinion that from this cutting in the middle, the word *messis* was derived. The upper part of the straw was called *palea*, and was used for fodder; the butt ends, *stramentum*, were used as litter. In some countries they pulled up all their corn by the roots, and fancied, says Pliny, that the disturbing the surface thereby was beneficial to the land. The reaping on Achilles shield is similar to ours, except that it implies a greater division of labour than we usually carry out. In a previous passage, Homer declares the practice of rich men to have been, to start a gang of reapers at each end of a field of corn, and to their approach he likens that of the Grecian and Trojan hosts. Pliny, in a very obscure passage, and Palladius, in one which is more minute, describe a reaping-machine which was used in the large farms in Gaul. This much is evident, that the body of the machine was fixed on an axle which connected two wheels. To the axle were fixed a pair of shafts, into which a very steady working ox was harnessed, not in the usual manner, but, as a stable-boy would say, with his head where his tail should be. Consequently, when he walked on, instead of pulling by the shafts, he pushed by them, and drove the implement into the standing corn. By some machinery which we cannot undertake to describe, it collected ears of corn, cut them off, and dropped them into a receptacle—"in carpentum:" Pliny says "*vallum*." Palladius says, that this implement answered well in open and even land, and that some farmers in Gaul cut their whole harvest with it without employing any men as reapers. Was Mr. McCormick acquainted with these reapers and mowers?

Threshing presents as many varieties as reaping, and most of them must have been very old. Almost every one can be identified with some expression in the 27th and following verses of the 28th chapter of Isaiah. Threshing was generally performed immediately after harvest, and frequently in the fields; but Columella says, that where the ears only were cut off, they could be carried into the granary, and threshed during the winter. The threshing was by flail, by treading out, (for which horses are said to have been better than oxen,) and latterly by a machine drawn by cattle, described sometimes as having teeth, sometimes rollers, called *tribula*, *traha*, and *plostellum*, and which, whatever it might be, was adopted from Carthage. All the writers put forth their strength in describing the construction of the *area* or threshing-floor. Cato forms a concrete-like surface of heavily rolled and rammed earth (*cylindro aut paviculâ coæquato*), and saturated with the lees of oil (*amurca*). Varro follows his lead: Columella adds that the floor is improved if straw be introduced into the mixture. Pliny and Palladius macadamise flint, pound it, and roll it with the fragment of a column; but the latter mentions a floor "*saxo montis excisa*," we suppose flagged. Virgil, in a charming passage, which is as poetical as it is correct, constructs a threshing-floor. Two

lines suffice to describe the handworking of the earth, the leveling it with a very heavy roll, "*ingenti cylindro*," and the covering with a solid surface of chalk: a third points out that weeds and dust, which would spoil the grain, should be guarded against; while six more suffice to specify those peculiar habits of mice, moles, toads, weevils, and ants respectively, from which injury may be expected. Four words thrown in by way of &c. conjure up ideas of centipedes, earwigs, woodlice, and other disgusting inhabitants of cracks and chinks.

The Romans would not have incurred Mause Headrigg's reprobation "by impiously thwarting the will of Divine Providence in raising wind for their ain particular use by human art." They were content for the most part to "dight the corn frae the chaff" by casting it with shovels in the teeth of a moderate wind. In cases, however, of protracted calm or other emergency, Columella recommends the use of a *vannus*. It is mentioned by Virgil, among the "*duris agrestibus arma*," as "*mystica vannus Iacchi*"; and was no doubt a fan of some sort. The words are the same. They also used sieves to free the grain from dust. These are mentioned both in the Old and New Testament.

The modes of using straw were various, and the variations were local. Ordinarily, the upper half was used as cattle food, the lower as litter; but when the former failed, the latter was bruised on stones—a rude anticipation of our chaff-cutting—and sprinkled with salt to induce the cattle to eat it. Columella sets very little value even on the *palea*. He says that in many places cattle are fed on it from necessity, but "*minus commode*." Varro directs that where the ears only of the corn have been reaped, the straw should be cut and gathered immediately after harvest; but that if the crop were thin and labor is scarce, it will not pay for this, and it should then be pastured with cattle as it stands. Thatching houses with straw is spoken of as a practice confined to particular localities. Cato is precise, that every spike of straw or stubble should be gathered for litter, and even that it should be eked out with leaves of *ilex*. Virgil says, that to burn the stubble on barren land is good practice. Pliny, noting that this is done "*magno Virgilii præconio*," adds, that the principal benefit arises from the destruction of the seed of weeds. Both Isaiah and Obadiah allude to the practice of burning stubble. In classing straw as fodder, the writers all agree in the order of merit—millet, barley, wheat. The straw of pulse only was given to sheep.

As to manure, the directions of the prose men are rather precise than cleanly, and we shall not enter into the subject very largely. It is only Virgil, as Dryden says, who can "toss his dung about him with the air of a gentleman." The value of every living creature on the farm, as a manure-making machine, is most minutely weighed up; and the separate sorts of manure are classed according to their respective values. The schedule presents some variations from modern opinion. The manure from water-fowl is said to be of no value, which contrasts strangely with our appreciation of guano. Columella puts manure from pigs at the bottom of the list, for which Pliny sneers at him. We stumbled somewhere on a passage interesting to modern

farmers, which we cannot now refer to. The purport was, that part of the value of corn given to cattle is replaced in increased strength of the manure. A diligent collection of everything which can beneficially swell the bulk of the heap, is prescribed—leaves, weeds, scrapings of highways, &c. He is a very idle farmer, says Columella, who does not get together some manure, even if he does not keep cattle. The only allusion to extraneous manure, purchased for the farm, is confined to that made in aviaries, which seems to have been sown by hand both on meadows and on corn. Cassius is quoted as a great authority on the respective values of manures. Cicero and Pliny enter into the early history of manuring. The former says that it is singular that the learned Hesiod, writing about agriculture, should not have said a single word about manuring, whereas Homer, who lived so many ages before him, (*ut mihi videtur*,) represents Laertes to have soothed the regret which he felt on account of his son, by cultivating and manuring his land. In the description of Laertes' gardening, as it has come to us, there is not a syllable about manuring; whereas in the seventeenth book of the Odyssey, there is a distinct notice of a manure heap, and of the agricultural purpose to which it was to be applied. Pliny asserts the antiquity of the practice, follows Cicero in the story about Laertes, and adds that King Augeas first discovered the advantage of manuring in Greece, and that Hercules published it in Italy; a statement which appears to negative the claim of King Stercutio to the invention for which he was immortalized and worshipped. Far be it from us "*tantas componere lites*." The marvel would appear to be, not that a cultivator should make the discovery, but that any one should miss it.

Close on the heels of the directions for collecting and multiplying manure, follow those for its manipulation and management. Dickson revels in the middens. Skillful husbandmen, say Columella and Pliny, cover up their heaps, and suffer them neither to dry by the wind, nor to be parched by the rays of the sun. Hollow water-tight receptacles which retain the moisture are recommended. Either oak leaves should be intermixed, or an oaken stake driven into the heap to prevent serpents from breeding there. Columella delicately observes that the treasure should not be piled up in front of the parlor (*prætorii*) windows. Cato and Varro say that manure, heaped, turned, and rotted down, is stronger than when green. From this opinion Columella and Palladius dissent, holding that the benefit of the turning and fermentation consists in their destroying the seeds of weeds, but that they weaken the manure; and they therefore prescribe that it should be applied quite fresh to grass land, where the weeds cannot so easily get root. Palladius thinks it necessary to wash sea-weed in fresh water before it is used as manure. Manure was principally applied in spring and autumn. A little and often was considered to be the best practice. Wet land required more than dry. Dickson ascertains that 800 Winchester bushels of well-prepared manure to a statute acre was an average Roman dose. Pliny says that some persons think that land is best manured (*optime stercorari*) by having sheep, perhaps cattle (*pecora*) folded on it.

Theophrastus says, that mixing earths, "*ponderoso leve, levi ponderosum, macro pingue et contra,*" will often stand in the place of manure. Columella also records that his uncle, who was a most scientific and industrious farmer, improved his land by applying chalk to his sandy, and sand to his chalky and clay soils. Pliny, giving vent to the contempt for Columella which he is so little careful to conceal, says "that is the practice of a madman. What can a man hope for who cultivates in this manner?"

Though lime was used agriculturally by the Romans only in their vineyards and orchards, we cannot wholly pass by the curious information which Dickson's chapter on the subject contains. Cato recommends its application to olives, and Pliny to vines, but more particularly to cherries. He says that cherries were unknown in Italy till Lucullus introduced them after his victory over Mithridates, A.U.C. 680, and that, within 120 years of their introduction, they were dispersed by the Romans as far as Britain. The English are inclined, however, to claim an indigenous origin for their bird-cherry, and for the Scotch gean. We learn from Palladius that builders and plasterers were as fastidious about lime in his day as in ours, each requiring the limestone and the sort and quantity of sand appropriate to their operations respectively. Cato describes most minutely the mode of building the kiln and of burning the lime. We may certainly consider it as a singular proof of his sagacity, that, for several years last past, the practice of lime-burning in England has tended to return to the principle which Cato prescribes, from one which had long been considered as a great improvement. Lime-burners will understand us when we say, that Cato's principle was, close fires and a very obstructed supply of air, each kiln full of lime being an independent burning. The modern practice among large lime-burners has been, till recently, deep open-topped kilns, supplied with fuel and limestone on the surface, the fire being urged by a brisk draft of air from the bottom, which served also to cool the lime in its descent to the holes in the kiln bottom, whence it is drawn in a continuous stream. We have some experience in the matter, and believe that, in point of economy, Cato is vindicated. He also describes a system of burning lime in partnership. The owner finds the stone, the kiln, and the fuel. The working partner quarries the stone, and finds all the remaining labor. They divide the spoil. The practice is not unknown now, nor do the proportions vary very materially; but our division is less favorable to the working partner, and ought to be, because our fuel is less cumbrous. Although Pliny limits the agricultural use of lime by the Romans to olives, vines, and cherries, he says that the Hedui and Poictiers (the people of Autun and Poitiers) made their general land very productive by its application.

Varro reports, that when he led an army through Transalpine Gaul as far as the Rhine, he passed through a country having neither olives, vines, nor apples—where they measured the land "*candidâ fossiciâ cretâ.*" Pliny says that on wet, cold land in Megara the Greeks, who tried everything, applied "*leucargillon.*" In Gaul and Britain, however, what we call marling appears to have been a staple practice in

husbandry, and to it Pliny devotes several pages. He enumerates six different kinds of marl, called marga, terra fullonio, glischromargon, eglecopala, capnomargos, and other fine names. Some very clayey for light lands; some sandy for heavy lands; some rocky, and retaining that form, to the great hindrance of stubble-mowing, till several years of sun, rain, and frost reduced them. Some lasted ten years, some thirty, some fifty. Some were got at the day; and one sort, which lasted eighty years, and which no man had ever been known to apply twice to the same land, was got in Britain by means of narrow pits, thirty yards deep. The mode of working described by Pliny is similar to a sort of rude coal-getting, which is now sometimes practiced in England, where the seam lies at no greater depth. There are superficial marl-pits in the midland counties, in which grow the ruins of ancient oaks, acorns perhaps in the time of Pliny.

The general grain lands of the Romans were not enclosed or fenced, except occasionally against public highways. They were acquainted, however, with every species of fence which is now in use, and applied them to vineyards, gardens, orchards, cattle-folds, and parks in front of the villa in which wild animals were confined, "ut possidentis oblectarent oculos." Palladius, the last of the writers, recommends that meadows should be enclosed. Quick fences—"vivæ sepes"—says Columella, are preferable to dead, because a mischievous fellow going by with a torch cannot set fire to them. They were raised from seed, with much preparation and culture, in which pea-meal and old ship-ropes bear a conspicuous part. Directions may be found in one or other of these authors for raising every sort of fence which now prevails in Great Britain or Ireland. Pliny particularly describes the frame by means of which such mud-walls as are now seen, were reared. He limits them to Africa and Spain.

Notwithstanding the ameliorations of climate which we are told to hope for from draining, we do not expect to see vines an object of the modern farmer's culture, nor wine-making one of his household labors; we shall, therefore, merely intimate that any one who is anxious to learn "the ancient" practice in these matters, will find ample information in the agricultural writers. Beer comes home to our sympathies. Pliny says bluntly enough—"The western nations have their own way of getting drunk, by steeping barley. In Gaul and Britain the ladios use the yeast (spuman) as a cosmetic." This art, we fear, is lost; but the second use of yeast survives. These nations, says Pliny, used it for fermenting their bread: "Quâ de causâ levior illis quam cæteris panis est." But the use of beer was not confined to the western nations. The Egyptian *zythus* was beer—Suidas says *ἄπο κριθῆς γινόμενος* made of barley—and Pelusium was the Burton-on-Trent of Egypt:

"Ut Pelusiaci proritet pocula zythi."

Moreover, the Egyptians, being destitute of hops, flavored their ale with the bitter lupine, and with an acrid wild carrot, of which Pliny says—"nemo tres siseres edendo continuaret." Wilkinson, most properly, devotes two or three pages to the Egyptian *zythus*. In Spain they made beer which would keep for several years. Tacitus speaks

of German beer more scornfully than is consistent with its modern reputation. "*Potui humor ex hordeo aut fermento in quandam similitudinem vini corruptus.*"

Beer runs through all the classics. Athenæus says that beery men dance, and sing, as merrily as those who are overtaken in more generous liquor. Aristotle states, with more discrimination, that the former, when helplessly overcome, lie on their backs, and the latter on their faces. Æschylus, Sophocles, Herodotus, Archilochus, Hecateus, and Areteus, all mention beer. Xenophon, during the retreat of the Ten Thousand, passed a convivial night with an Armenian sheik near to the sources of the river Phasis. The sheik's daughter, who had been married nine days, graced the feast with her presence. Her husband was not of the party, being off in the mountains coursing. On the floor of the subterranean dwelling stood a vessel filled with barley-bree, and furnished with hollow reeds of various sizes. Want of a common language did not prevent the observance of customary convivial compliments. The host, as his benevolence prompted, led some favored guest to the beer-barrel, where the politer sort sucked the liquor through the reeds; but others, who had not learned manners, thrust in their noses like oxen. Xenophon says it was strong drink, but very pleasant when you were used to it. When the sun had risen on their revels, Xenophon, who commanded the rear guard, took the sheik with him to the van of the army. There they found that General Cheirisophus, and his officers, had also met with good quarters, and were still protracting their festivities. They were crowned with rushes, and Armenian boys were ministering to them. To these boys they indicated by signs the form in which their services were required. Seven days were spent in these pastimes. On the eighth they took the sheik for their guide, and his son as hostage for his fidelity. The sheik led the army three days' march into the snow. Cheirisophus suspected treachery, and struck the sheik, but neglected to fetter him. The sheik, resenting the indignity, levanted in the course of the night, leaving his son behind him. Then arose the only serious difference of the whole retreat between Xenophon and Cheirisophus, probably as to the fate of the boy. That, however, was settled by another general, Episthenes, who, having taken a fancy to the boy, carried him to Greece, and he proved, says Xenophon, very faithful.

In treating of fallows, we have spoken of the number of ploughings which the Romans gave to their land; but our description would be incomplete if we did not allude to the manner in which they were executed. We know that they were generally executed by two oxen, and that a *jugerum*, three-fifth of a statute acre, was a regular day's work, and was in free land considerably exceeded, a general depth of nine inches will not, to a practical farmer, appear very probable. They were not, however, very superficial, for Pliny will not allow a depth of four fingers—three inches—to be a ploughing; but calls it a scarification. As, moreover, one ploughing in the fallow course received a distinctive name, "*proscindere*," with respect to which Pliny says, "*vi omni arato*," and as he states that it was not unusual to attach six, or even eight, oxen to one plough, it seems probable that

once, at least, in the fallow course, the land was stirred to a considerable depth. There are several maxims about going below the roots of all weeds. We should bear in mind that the Roman plough was an implement which did not of necessity turn a furrow, though it was capable of doing so by a direction given to it by a man who presided at the stilts. Our word furrow implies a slice of land turned over, whereas their word "*sulcus*" implies only a certain breadth disturbed and lightened up. The object of their fallow ploughings, and indeed of all their ploughings, except breaking up turf and the ridging which we have already described, was to stir all the land to an even depth. To effect this, they prescribed very narrow and equal breadths, and very straight lines. They had not the trouble which we experience, from the circumstance that the plough, in going and returning, turn the slice opposite ways. The Roman ploughman returned on his own traces, and one criterion of the perfection of his work was, that the surface should be left so even as to make it difficult to discern where the plough had gone. The overlooker is recommended to walk over the newly-ploughed field, and to thrust in repeatedly a pointed stick, by which he will discover whether any land has been left unmoved. In order to insure perfect culture, their second ploughing was always across the first. And even when the declivity was so great that they could not in either case go directly up and down, they took two oblique directions across the hill, which would intersect each other. The characteristic of Roman ploughing was precision. To move uneven breadths was called to plough "*sulco vario*," and was much condemned. Lumps of earth undisturbed were called "*scamna*," and were said to diminish the crop, and to bring a bad name on the land. He who ploughed crooked was said to prevaricate, "*prævaricare*;" whence, says Pliny, the phrase was imported into the law courts, and having been applied to those who went crooked in their ploughing, came to be applied to those who went crooked in their statements.

So great was the importance which the ancients attached to ploughing. "What," says Cato, "is the first point in good cultivation?" "*Bene arare.—Quid secundum? Arare.—Quid tertium? Stercorare.*" Pliny declares the passage to be oracular, but muddles it in quoting. Theophrastus, who long preceded them both, says that no crop ought to be grown on the fallow-break unless it can be cleared off so soon as not to prevent the land from receiving all its summer ploughings. Cato forbids his bailiff to plough when it is wet, or to cart over it, or even to allow cattle to go upon it. He says that it will not recover itself for three years. Columella, Pliny, and Palladius say that if you meddle with land while it is wet, you will lose the whole season.

The Egyptian ploughs, as represented in the drawings, are mere mud-scratchers, drawn sometimes by oxen, sometimes by cows with their calves skipping by their sides; and Pliny says that, on flooded lands, he has seen a plough drawn by a donkey on one side, and an old woman on the other—"vili asello, et a parte alterâ jugi anu vomerem trahente." Among the drawings from the Egyptian tombs, engraved for Sir George Wilkinson, are several which represent ploughing, sowing, and other operations, and in one of these a roller drawn by two

horses driven with reins is introduced. The roller is hollow, supported by a frame-work inside, in diameter about two-thirds of the height of the horses, and the drawing would be no inaccurate representation of a modern agricultural iron roller. We are not aware that the use of such an implement in husbandry is mentioned by any of the ancient writers. If Columella had been acquainted with its use, he would not have recommended that land, laid down for meadow, should be smoothed by an instrument which, according to his own account, worked so clumsily as the *crates*. We have already seen, that, in compressing a threshing-floor, a piece of a broken column was pressed into service as a make-shift roller. The Romans might have valued this implement as breaker of clods, and as an assistant to fine tilth; but not a single passage intimates that they sympathised with our idea of the advantage of a firm bed for the roots of corn. Quite to the contrary. Perhaps, in the climate of Italy, their crops were not so liable to be top-heavy as ours are. Perhaps the young plant was not so liable to be thrown out by frost.

When we come to sowing, the directions given by them are very analogous to those which any gentleman would receive, if he were to enter a grain county on one side, and ask the opinion of every farmer he met till he went out of the other. One would tell him to sow thin, because his land was poor, another because it was rich. A third would say, "Be liberal with your seed, because you are early in the season;" and a fourth would advise the same "because you are late." A fifth and sixth would differ as to whether wet land, or dry, required the most seed. This is the substance of what the ancients say in various passages—which we are not careful to harmonize, partly because their differences will dwindle when we mention the narrow limits between the thick and thin sowing. With few exceptions they recommend early sowing, and, as was their wont, enforce the practice by an epigrammatic maxim—"Early sowing sometimes deceives the husbandman; late sowing never—because the crop after it is always bad." Pliny will not have the joke, probably because he finds it in Columella, and gives the maxim—"Early sowing sometime disappoints the husbandman, late sowing always." Their mode of sowing was by hand, broadcast; or rather, according to the Egyptian drawings, overcast. A two-handed seedsman nowhere appears. We find in Theophrastus and Pliny an opinion which lingers still among seedsmen, where it has not been superseded by the drill. The same land was said to require varying quantities of seed in different years, and its taking much was "*infausto augurio*" for the crop. The land was supposed to be hungry, and to devour the seed. Theophrastus laughs at this as "*fool's talk*;" but Pliny says it is "*religiosum augurim*." Dickson explains the matter very naturally. In sowing, the step and hand go together. When the land is clammy the seedsman takes short steps, gives the field more handfuls. A clammy seedness is generally followed by an unproductive harvest.

The next and last point of practice is the quantity of seed sown: and in our observations upon it we shall confine ourselves to wheat. We approach the matter with some anxiety, because on our accuracy re-

specting it hangs the only chance we have of ascertaining what was the productive return for all the laborious culture which we have described. We may state as a preliminary, that the Romans were extremely particular in the choice of seed. They insisted on its being sound, plump, and well formed. They selected by hand from the ripened crop the boldest ears, rejecting all those which had any deaf husks. They were aware of the advantage of introducing seed from land which varied in soil or climate, and they represent that the produce of seed, taken indiscriminately, always degenerated in a few years. On the subject of quantity the writers are nearly unanimous, and very precise. There is, perhaps, a slight tendency in those who wrote last to increase the quantity of seed. The smallest quantity of seed-wheat named is rather less than two bushels to the statute acre—the largest exceeds two and a half by a small fraction. Cato is silent on the subject of quantity; but all the other Roman authors are unanimous in fixing on five modii to the jugerum, or less than two bushels and a quarter to the statute acre, as the standard quantity of seed-wheat. Both in the Scriptures, and in the old heathen authors, statements occur of the returns of one hundred, and one hundred and fifty, to one. These are, undoubtedly, meant to express very large crops; but how large, while the seed is an unknown quantity, it is impossible to ascertain. If we take two bushels of wheat as the seed to an acre, no practical farmer will be very apt to believe that any one ever reaped 300 bushels, or $37\frac{1}{2}$ quarters, of wheat from a single acre. By reducing seed, and by giving space and extra culture to each individual plant, an almost unlimited return, to one, may be obtained. That some such explanation must be given of these large statements is confirmed by the circumstances that, in the same passages in which Pliny makes them, he states also that an agent of Augustus sent him from Byzacium in Africa nearly 400 stalks (germina) from a single corn of wheat; and that Nero received from the same place 360 “*stipulas ex uno grano.*” In our homely way, we saw last summer, a single bean producing 7 stems, 129 pods, and 519 beans, which any one so disposed might call a return of 519 for one. The return of the field from which this root was taken was 33 for one. When the Romans measure and state their seed, their pretensions are much more moderate. Varro, using a little above two bushels of seed to the statute acre, claims a general return of 10 for one; and of 15 in land of extraordinary fertility. That is, about 21 and 32 bushels per acre respectively. He speaks of this rate of produce as a great falling off from what had been obtained in the time of his ancestors. Half a century later, Cicero (*in Verrem*) gives an account of the produce in the rich lands of Sicily. He claims $2\frac{1}{2}$ bushels of seed to the statute acre, and says, that well-cultivated land gives eight for one, or, “*ut omnes Dii adjuvent * * * quod parraro evenit,*” ten—equal to 20 and 25 bushels respectively. In another half century, Columella says that, over the larger part of Italy, the instances are few in which the return is more than four to one. The increasing lamentations over diminished produce, as we descend in the series of authors, are quite consonant with these returns.

ANCIENT BRITISH AND FRENCH AGRICULTURE.

We cannot close without a word or two on some conclusions respecting our Gallic and British ancestors, at which we have arrived from a perusal of the agricultural writers of Rome. When her professed historians passed the boundaries of Italy, they occupied themselves little with any matters which had not immediate bearing on the career of Roman conquest. The nations to their north and west were unknown to history, were classed under the general appellation of barbarians, and nothing respecting them appeared worthy to be recorded, except the degree of resistance which they were able to offer to the Roman arms. Of what Mr. Hoskyns appropriately calls their "inner life" we learn nothing. Even when Tacitus writes a treatise "On the Manners of the Germans," he gives an account which nothing but our respect for a great name prevents our calling childish and absurd. The people he professed to describe were a great nation, who repeatedly foiled the Roman generals, and destroyed their armies, and who, though harassed on their frontiers, were in fact never conquered. In epigrammatic and antithetical sentences he sets before us a state of orderly but very democratic freedom. Men inspired by romantic virtue, and restrained by puritanical morality; women chaste, constant, and devoted, as became the wives and daughters of such heroes. If the nation had a fault, it was a somewhat too great proneness to convivial hospitality. That their dwellings were covered neither with tile nor thatch, that the men wore a robe pinned on with a thorn, and that the semi-nudity of the females was only redeemed from indecency by their perfect innocence, is all that we learn about their lodging and clothing. A statement that they made an intoxicating liquor from grain; and three sentences, which are rather negative than descriptive, dispatch the whole subject of their agriculture. The conclusion of the treatise declines, with a prudent reserve, to pass any opinion on the apparently prevalent report that the remoter tribes combined the visages of men with the bodies of beasts. From such history, and from the statements and silence of Cæsar and Livy, we appeal to numerous but incidental and entirely unsuspecting circumstances, which meet us in the agricultural writers. They appear to us to warrant the inference, that a settled condition of society and considerable progress in the useful arts existed in Gaul and Britain before those countries were known to the Romans. Indeed, we doubt whether civilization was not rather repressed than advanced by their classic invaders. Nor is this opinion inconsistent with the fact that they were conquered. That they fell before armies to whose equipment and training the accumulated science of centuries had been applied, is analogous to the case of the village hero who, though he has by activity and pluck thrashed all his rural competitors, finds himself powerless in the hands of a professed prize-fighter.

The Romans found Gaul a country of large farms, (*latifundia*), in which various agricultural appliances quite unknown to themselves were habitually practiced. The Romans were ignorant of the general use of lime in agriculture: they learned it in Gaul. They found chalk

beneficially applied to corn-growing, both in Gaul and in Britain. In both countries various marls were applied to various descriptions of soil with scientific discrimination. In Britain, a particular description of marl, which was used as a top-dressing to land, was got by pits 10 yards deep. This circumstance is very significant. Every one conversant with underground work will be aware that it implies some power of freeing the works from water, and some scientific mode of ventilating them. The heavy expense of such an improvement is justified by the statement that the benefit endured for eighty years, and was only repeated after the expiration of that period. That circumstance, again, implies a settled state of society and great security of property. A Roman writer is not likely to have invented these matters; and we attach much more weight to inferences justly deducible from them, than we do to Cæsar's vague statement that no family ties existed in Britain, and that the connubial arrangements were analogous to those of the poultry-yard and sheep-fold. The case of agricultural implements is still stronger.

ANCIENT AMERICAN AGRICULTURE.

The North American aborigines were not an agricultural people—the cultivation of the soil was considered among them as a degrading occupation for the men of the tribes, who left it to the old women and children. Indian corn was their principal crop, and they possessed several varieties, of different colors, which were kept carefully apart. When the oaks began to leaf in the spring, the squaws would burn the fields, bringing dry branches that they might obtain their fertilizing ashes, and they would then cultivate, or rather root up the surface, with the flat shoulder-blades of the moose. They would then mark the future hills by making small holes, (about four feet apart,) with rude wooden hoes or clam-shells;—put into each one an alewife from some adjoining stream, or a horse-shoe crab from the sea-shore; and on this stimulant drop and cover a half dozen grains of corn. The land thus planted was guarded against the depredations of the birds, and as the corn grew the earth was laboriously scraped up around the stalks with clam-shells, until the hills were two feet high. Early in September the ears were plucked, leaving the stalks and leaves to enrich the ground, and were carried in back-baskets to the wigwams. The next year's seed was selected, and the remainder was dried in the husk on stagings, over smouldering fires;—then husked, shelled, packed in large birch-bark boxes, and buried in the ground below the action of the frost. "*O-mo-née*" was this dried corn, cracked in a stone mortar, and then boiled;—when pounded into meal and sifted through a basket to be made into ash-cakes, it was called "*Sup-paun*." The warriors, when on a war-path, subsisted on parched corn, which they called "*No-kake*." Roger Williams, the founder of Rhode Island, speaks of having "traveled with two hundred Indians at once, nearly two hundred miles through the woods, every man carrying a little basket of this at his back, sufficient for one man three or four days."

Several varieties of beans were raised with the corn, that the "har-

vest moon" dish of "*mu-sick-qua-tush*" might be enjoyed. This was not, however, simply composed of corn and beans, for we are told by Goodkin that they boiled in it "fish and flesh of all sorts, either new taken or dried—venison, bear's flesh, beaver, moose, otter, or racoon, cut into small pieces; Jerusalem artichokes, ground-nuts, acorns, pumpkins, and squashes." The Indian pumpkins were especially large, and fine flavored. At the North-west wild rice was gathered, and kept for winter use.

"*Mish-i-min*," in the Algonquin tongue, signifies apple; although it is the opinion of some learned writers that this fruit was unknown among them before the arrival of the Europeans. Several old printed compilations of early voyages, however, reckon apples among the early native fruits; and, unless crab stocks were found, it does not appear how the large orchards, mentioned by the early writers, could have been made productive so soon. Mr. Wolcott, a distinguished Connecticut magistrate, wrote in 1635, (certainly not more than five years after his colony was first planted,) "I made five hundred hogs-heads of cider out of my own orchard in one year." This would have been almost impossible, had he been obliged to raise his orchard from the seed, or had he planted trees of such a size as could have been transported through the trackless wilderness. The apple may not be indigenous to the Algonquin country, and yet the Indians may have possessed it, as they did corn, which is not a native of their soil.

Certain it is that they had orchards of peaches, and of cherries, and of plums; stores of which were dried for winter use. Tobacco was every where cultivated, huge grape-vines entwined many a forest tree, and there was an abundance of berries in the woods. Gourds were raised in great numbers, and of all sizes, from the large "*cal-a-bash-es*" that would hold two or three gallons each, to the tiny receptacles of pigments used in painting for war. From the sap of the maple they made a coarse grained sugar, which, when mixed with freshly pounded "*sup-paun*," and seasoned with dried whortleberries, was baked into a dainty dish for high festivals. The dried meats of oil-nuts, pounded and boiled in a decoction of sassafras, was their only beverage at such feasts, and from the green wax of the bay-berry they made candles with rush wicks, which gave clear lights, and yielded a pleasant fragrance while burning.

Their wigwams were constructed of saplings, set into the ground in a circle, and then drawn together at the top until they formed a conical frame some nine or ten feet high at the apex. This was covered with thick mats of woven grass, or with large sheets of birch-bark, sewed together with the dried sinews of the deer, and then caulked with some resinous gum. A mat served as a door—in the center was a stone hearth, with an opening above it for the escape of smoke—the only article of furniture was a large couch, elevated about a foot from the ground, and spread with dressed skins and mats. Birch-bark boxes were used to hold finery and provisions, while the frame-work of the wigwam was hung with war-clubs, bows, bundles of arrows, fish-spears, hoes, axes, and the other rude implements which the Algonquins possessed. Unacquainted with the use of iron, their cutting instruments

and sharp weapons were pointed with flint-stone, shells, or bones, and their earthen vessels were of the coarsest description. They had no domestic animals except a few small dogs, and no poultry.

Such was the primitive agricultural life of the Algonquins, who have been gradually blotted out from their pleasant homes, to make way for the "pale-faces." On many sunny slopes now smiling with cultivation, were their cheerless wigwams, their crabbed orchards, and their ill-tilled corn-patches. Beneath the shades of forests long since felled, and where flourishing communities now dwell, they tracked the wild beast to his lair, or reposed, weary of the chase, to partake of their slaughtered game. Where spires now point heavenward, and the doors of school-houses "swing on their golden hinges," the war-hatchet was unburied, or the "*cal-u-met*" of peace was whiffed, or the "*pow-wows*" went through their mystic incantations. And as we meet at cattle shows and agricultural anniversaries, so the Algonquins in their day celebrated the "green corn dance," or the "feast of the chestnut moon."

"Alas for them—their day is o'er,
Their fires are out from hill and shore;
No more for them the red deer bounds;
The plough is in their hunting grounds,
The pale man's axe rings through their woods,
The pale man's sail skims o'er their floods,
Their pleasant springs are dry."

AGRICULTURAL BOOKS PUBLISHED IN 1861.

A writer in the *Country Gentleman* gives the following list of books that were issued during the past year in this country, upon agricultural subjects. Notwithstanding the war excitement of the times, in no year since 1850, if we except 1859, have so many works of this class been published. We fear, however, that the sales have not been such as to make the publishing investment profitable:

- ALLEN, L. F.—*American Herd-Book of Short Horn Cattle*. Vol. V. Buffalo, N. Y.: R. Wheeler & Co. 500 pp. \$5.
- ALLEN, STEPHEN L.—*Fibrilla: A Practical Treatise on Flax Culture*. Illustrated. Boston: A. Williams & Co. 75 cents.
- BRIGHT, WM.—*The Single Stem, Dwarf, and renewal system of Grape Culture*. Second edition. Philadelphia. 155 pp. 50 cents.
- CLARKE, W. S.—*Report on Horses, submitted to the Massachusetts Board of Agriculture*. Boston: William White. 94 pp.
- EMERSON, GEO. B., and FLINT, CHAS. L.—*A Manual of Agriculture, for the School, the Farm, and the Fireside*. Boston: Swan, Brewer & Tieson. 306 pp. 75 cents.
- GRAY, ASA, M. D.—*How Plants Grow: A Simple Introduction to Structural Botany*. With a Popular Flora, or an Arrangement and Description of Common Plants, both Wild and Cultivated. Illustrated. Fifth edition. New York: Ivison, Phinney & Co. 75 cents.
- GOODALE, S. L.—*The Principles of Breeding; or Glimpses at the Physiological Laws involved in the Reproduction and Improvement of Domestic Animals*. Boston: Crosby, Nichols, Lee & Co. 164 pp. 75 cents.

- HARRIS, JOSEPH.—The Rural Annual and Horticultural Directory for 1862. Illustrated. Rochester, N. Y. 125 pp. 25 cents.
- HARRISON, J. S.—The Bee Keeper's Directory; or the Theory and Practice of Bee Culture. San Francisco, Cal.: H. H. Bancroft & Co. 440 pp.
- JOHNSON, S. W.—Lectures on Agricultural Chemistry; Delivered before the Smithsonian Institute at Washington.
- KLIPPART, J. H.—The Principles and Practice of Land Drainage. Illustrated. Cincinnati, Ohio: Robert Clark & Co. 454 pp. \$1 25.
- LAWES, J. B.—On the Sources of the Nitrogen of Vegetation. Philadelphia.
- MAYHEW, EDWARD.—The Illustrated Horse Doctor, with an accurate account of the Diseases of the Horse, and the best Mode of Treatment. New York: D. Appleton & Co. 8vo., 536 pp. \$2 50.
- ROWLANDSON, THOMAS.—The Sheep Breeder's Guide; with Rules for the Management and Breeding of Sheep, and a description of the varieties best adapted to California, Oregon, and Washington Territory. San Francisco, Cal.: J. Q. A. Warren. 150 pp. \$1 25.
- RANDOLPH, MISS C. J.—The Parlor Gardener; A Treatise on the House Culture of Ornamental Plants. Boston: J. E. Tilton & Co. 75 cents.
- THOMAS, J. J.—The Illustrated Annual Register of Rural Affairs for 1862; containing Practical Suggestions for the Farmer and Horticulturist. Albany, N. Y.: L. Tucker & Son. 144 pp. 25 cents.
- TUTTLE, J. H.—Barriers' Arabian Method of Horsemanship. 100 pp. 50 cents.
- TENBROOK, J. W.—The Sweet Potato Culturist. New York: C. M. Saxton. 95 pp. 25 cents.
- Wood, A.—Class Book of Botany: being outlines of the Structure, Physiology, and Classification of Plants. New York: A. S. Barnes & Burr. \$2.

AN AGRICULTURAL MISSIONARY.

The *Journal d'Agriculture Pratique* says the Agricultural Society of Flemish, Prussia, has created a professorship to carry healthy ideas concerning agriculture into the villages. The German professor is to commence his operations by making himself acquainted not only with public functionaries, but also with practical farmers. He is to gather information on every subject in connection with the details of farming, and with regard to the different races of animals in the various departments.

AGRICULTURAL LABOR.

Owing to the large number of farm-hands enlisted in the army, and the decreased arrival of immigrants, agricultural labor will doubtless command high prices during the coming season. The number of alien passengers landed at the port of New York during the year 1861 was 65,529, which was a decrease from 1860 of 39,633, and 118,244 less than in 1857. Of these immigrants 27,139 were from Germany, 25,784 from Ireland, 5,532 from England, and 6,974 from other countries.

The Secretary's Table.

ROOMS OF THE UNITED STATES AGRICULTURAL SOCIETY,
Patent Office, Washington, D. C., February, 1862.

This is the initial number of the tenth volume of the Transactions of the United States Agricultural Society, which will complete the first series of its publications. That this may be done, and with the earnest hope that before the annual meeting of 1862, Agriculturists from all the States may be able to cordially co-operate in the more permanent establishment of our National Society, the Secretary has consented to continue his unremunerated labors. Conscious of his own inability to produce a publication which should be worthy of the agricultural interests of the great nation whose name the Society bears, and entirely unprovided with means for the enlistment of abler writers, he can only earnestly appeal to those engaged in the cultivation of the soil, and ask them to aid him in the diffusion of agricultural knowledge, and in the advancement of the interests of the cultivators of the United States. Communications and essays are respectfully solicited by

BEN: PERLEY POORE,

Secretary U. S. Agricultural Society.

NATIONAL AGRICULTURAL SOCIETIES.

A popular English periodical recently contained an article on the "Royal Agricultural Society of England," and its traveling exhibitions, which embraces many wholesome truths, some of them applicable, perhaps, to the "United States Agricultural Society," and to its "Agricultural Encampments," at which, by the way, more money has been bestowed in premiums than has been awarded in England, although the Royal Society has an income from Government of nearly \$50,000 per annum:

Anomalies—What the Society Has Not Done.

According to the theory of the charter which makes it royal, the first object of the society is "to promote the science and practice of agriculture," yet the most prominent members of its council, and the majority of its presidents, know as little of either as a man can who owns great estates and rides fox-hunting at some time of his life. For membership, the only qualification is an undertaking to pay the annual subscription. With an income of some £10,000 a year, there is no museum, no library worthy of the name, and no expenditure on scientific investigations, beyond a few hundred pounds grudgingly devoted to the labor of a professor of chemistry, whose zeal fortunately is not measured by his official income. Out of six thousand members, five hundred have never been gathered together at one time, in one place. The prizes given during two-and-twenty annual shows on agricultural implements have very often been either mistakes when awarded to novelties, or tardy endorsements of established agricultural experience—like Lord Chesterfield's patronage of Johnson's dictionary—when allotted to practical utilities. The prizes for live stock have readily encouraged the exhibition of animals too fat to breed, and too costly to eat—the admiration of the ignorant, and the despair of the purchasers. * * *

What it has Done.

The Royal Agricultural is one of the most useful Societies in the country—a living,

breathing, and eminently successful institution. For it has supplied a want—taken advantage of a tide—founded a great annual agricultural festival and fair, where profit and pleasure are combined, and the greatest amount of advertising and sale of live stock and implements—the greatest amount of eye-teaching that could be conceived—is packed into the space of about a week and five-and-twenty acres. For the week of the great show, the many acres filled with whole streets of animals and agricultural machines and tools, include the advantages of a great fair and pleasures of a gigantic *conversazione*. At these shows farmers exchange with friendly greetings their opinions and their experience, while making bargains, and deliver unrehearsed, unprinted essays on every point of agricultural interest suggested and illustrated by the objects of the show. * * * It has every year built up a great bazaar, and breeders and manufacturers, and customers of both, have crowded there to sell and buy, and learn by the education of the eye the value of the best live stock, and the best agricultural machinery. Not taught by the Council, but teaching each other, the farmers of England have realized all that was practicable in the aims of the founders of the Royal Society. In a word, they have been enabled to do a good deal for themselves; and that, in England, is the spirit of our social as well as of our political institutions. * * * The catalogue of the live stock exhibited at the Liverpool show in 1841, fills twenty-four widely printed pages. In 1861, that of Leeds, eighty-five of very close print. But number can give but a faint idea of the improvement in average quality, in weight, in symmetry, in everything that makes live stock profitable, which has been distributed through the length and breadth of the land. In the department of implements and machinery, the change, improvement, and increase, has been still more remarkable.

Let us hope that next January, delegates from the leading Societies of our country will assemble at Washington, and, profiting by the ten years' history of the United States Agricultural Society, so re-organize it and direct its future career, as to show "WHAT THE NATIONAL SOCIETY CAN DO."

AGRICULTURE OF THE ANCIENTS.

So much of the article on preceding pages of this number of the *Journal of Agriculture*, as relates to the agriculture of the Old World, is compiled from an article in the *British Quarterly Review*, from the pen of the late Thomas Gisborne. This practical farmer was born in 1787, and died in 1852, in the county of Staffordshire, where he successfully cultivated a considerable average of arable and pasture land, paying especial attention to drainage, to the dairy, and cattle and sheep feeding. A member of the British House of Commons for a quarter of a century, he was well known as a "public man," and his speeches on various subjects were numerous, but his favorite topic was the advancement of the Art of Husbandry.

While Mr. Gisborne and the writers quoted by him have traced the analogy between the ancient and modern agriculture of the Old World, and have supplied the connecting links, the modes of cultivation practiced on this continent by our aboriginal predecessors remain almost unknown. As a commencement to the supply of this want, forming the initial chapter of the History of American Agriculture, some facts on the agriculture of the powerful tribe of the Algonquins, compiled from authentic sources, are also presented. It is desirable that every one who has any reliable information on the agriculture, such as it was, of the Indians who once inhabited the territory now the United States, should at once place it before the public, and the pages of this journal are offered to any one who may desire to publish the result of their researches.

THE LATE FARMER-PRINCE CONSORT OF ENGLAND.

The late Prince Albert, so sincerely mourned by Britons as the consort of their Queen, demands a tribute of respect from agriculturists the world over, as a successful farmer and stock-breeder. He cultivated four landed estates, and the Herefords at the "Flem-

ish," the Devons at the "Norfolk," and the Shorthorns, Clydesdales, and swine at the "Home" and "Shawe" farms, have often been alluded to by American travelers. As an exhibit^{or}, Prince Albert received, since 1841, eleven cash premiums for Shorthorns, forty-one for Devons, fourteen for Herefords, and twenty-seven for swine, amounting (exclusive of three gold medals and twenty-three silver ones,) to upwards of five thousand dollars. The buildings, especially those at the farms regarded as the "homesteads" of the royal occupants of Windsor Castle, bore testimony to the lamented Prince's taste and power of detail. While the stock was prominent at exhibitions, the farms were naturally becoming more and more national trial grounds, on which the newest implements and seeds were to be tested; and "a day at the Prince's" was one of the highest pleasures that a party of home and foreign agriculturists could ask for—the lovers of chemistry, of physiology, and of farm architecture could all exchange minds with advantage there, and all learn something. Prince Albert had just taken his seat as President of the Royal Agricultural Society of England, for 1862, when the sad summons came, and had only once presided at its council-board in Hanover Square. The Society will be deprived of his services during its "jubilee year," but it is earnestly to be hoped that the Windsor farms will remain just as they were when they formed one of his greatest pleasures, and that the Prince of Wales will prove to the agriculturists of Great Britain all that his father has, and would have been.

LEGISLATION BY CONGRESS ON AGRICULTURE.

A bill has been passed (almost unanimously) by the House of Representatives, by which, if it becomes a law, there will "be established at the seat of Government of the United States a Department of Agriculture, the general designs and duties of which shall be to acquire and to diffuse among the people of the United States useful information on subjects connected with agriculture in the most general and comprehensive sense of that word, and to procure, propagate, and distribute among the people new and valuable seeds and plants."

The proposed Department is to be presided over by a "Commissioner of Agriculture," who will have the power to appoint the necessary clerks, and also, as occasion may require, to employ other persons, for such time as their services may be needed, including chemists, botanists, entomologists, and other persons skilled in the natural sciences pertaining to agriculture."

Among the appropriations by Congress for the coming fiscal year is the following:

"For collection of agricultural statistics, investigations for promoting agriculture and rural economy, and the procurement, propagation, and distribution of cuttings and seeds, of new and useful varieties, and for the introduction and protection of insectivorous birds, and for investigations to test the practicability of preparing flax and hemp as a substitute for cotton, sixty thousand dollars; *Provided however*, That in the expenditure of this appropriation, and especially in the selection of cuttings and seeds for distribution, due regard shall be had to the purpose of general cultivation and the encouragement of the agricultural and rural interests of all parts of the United States.

COMMISSIONERS OF THE U. S. AG. SOCIETY.

MESSES. FREDERIC SMYTH, of New Hampshire; J. H. KLIPPART, of Ohio; and A. H. MYERS, of California, were appointed at the recent annual meeting, Commissioners to represent the United States Agricultural Society, at all Exhibitions to be held in Great Britain and Europe, during the present year.

THE CINCINNATI MEDALS.

The medals awarded at the Exhibition of the United States Agricultural Society, held at Cincinnati, in 1861, are ready for delivery.

ABSTRACT OF AGRICULTURAL INFORMATION.

[Received by the Secretary during the quarter ending February 15th, 1862.]

CALIFORNIA.

Heavy rains in the months of December and January have inundated the fertile plains of the Golden State, and left the agriculturist in a pitiable condition. The fences have been carried away; the barns and stacks of grain destroyed; cattle have been drowned, or chilled, or starved; farming implements are floated away, or ruined; houses are soaked if not destroyed; orchards are buried under debris, or killed by the cold tides and sleet; sand is washed upon the fruitful soil waiting to burst into the green of wheat or the beauty of vineyards; confidence in the valley as a fit home for human beings is broken down in many of the energetic colonists; and hundreds of them, after they have seen their cattle killed and their homesteads ravaged, have been saved from the upper rooms of their houses and sometimes from the tops of trees, by boats and little steamers that have cruised on Samaritan errands of rescue, and brought away paupers that two months ago were independent.....Several successful experiments in cotton-raising are mentioned in the California papers—among them “Silk-Cotton,” raised in Tulare county, from Texas seed. It was grown on sandy soil, containing no alkali, of which there are tens of thousands of acres lying unimproved in the country. The cotton was planted in May, and the bolls sent were picked in September, but the plant is still in bloom. The stalks are about five feet high, and they cannot sustain the weight of the cotton. Want of facilities prevents its being irrigated sufficiently early, and even under untoward circumstances the stalks produced an average of 126 bolls each. It requires to be irrigated about four times during the season, including once in September; and will continue to bloom until stopped by the frosts, which in that section hold off until November.....Sorghum has been successfully cultivated in California for its sirup; and the yield appears to have averaged about 180 gallons to the acre.....Among the blooded stock recently imported into California, are the stallions “Nana Sahib,” from Ireland; “Hamilton Chief,” from Upper Canada; “David Hill,” from Vermont; and the short-horn bull “Duke of Northumberland 4th.”.....It is estimated that there are 1,574,666 sheep in California, and that the wool-clip of 1861 was 4,544,000 lbs., of which 3,069,000 lbs. have been shipped to New York, Boston, and England. The balance being in the hands of factors in California, in store, on sale, and in producers’ hands. The average cost of maintaining flocks in California is estimated at 75c per head. The average increase 95 per cent., the average profit 30 per cent., the average clip 3 lbs. Where the French and Spanish have been introduced, some grade flocks yield from 5 to 7 lbs. of wool.

CONNECTICUT.

At the annual meeting of the State Agricultural Society, [which is held on the same day as that of the United States Society, and thus deprives us of the pleasure of seeing our Connecticut friends at Washington,] the following officers for 1862 were elected: President—E. H. Hyde, of Stafford. Vice-Presidents—Robbins Battell, of Norfolk; D. F. Gulliver, of Norwich. Cor. Secretary—Henry A. Dyer, of Brooklyn. Rec. Secretary—T. S. Gold, of Cornwall. Treasurer—F. A. Brown, of Hartford. Directors—Charles M. Pond, Hartford county; Randolph Lindsley, New Haven; James A. Bill, New London; E. Hough, Fairfield; Levi Cowles, Middlesex; Lemuel Hurlbut, Litchfield; Benj. Sumner, Windham; R. B. Chamberlin, Tolland. Directors (appointed by County Societies)—J. A. Hemingway, Hartford county; N. A. Bacon, New Haven; Henry Bill, New London; G. W. Seymour, Litchfield; Ezra Dean, Windham; Stephen Hoyt, Fairfield; J. S. Yeomans, Tolland. Chemist—Prof. Johnson, of Yale College.....We regret to learn that “*The Homestead*,” an excellent agricultural periodical which has been published at Hartford during the past six years, has been discontinued—its publisher finding that, through a “seductive, but most unwise system of credits,” he could not get back the outlay which it cost. Its subscription list has been merged with that of the “*American Agriculturist*,” which paper is sent to the late readers of the “*Homestead*.”

DELAWARE.

At the annual meeting of the Kent county Agricultural Society, the following officers were elected: President, R. W. Reynolds; Vice-Presidents, Robert H. Cummins and Samuel Draper; Recording Secretary, Dr. J. C. Rird; Corresponding Secretary, Manlove Hayes; Treasurer, Dr. H. Ridgeley.....A report on agricultural experiments was ordered to be published, and a committee was appointed to devise a suitable build-

ing, to be erected on the Fair Grounds. A memorial to the Congress of the United States was also adopted, asking that agriculture may not be overtaxed for prosecuting the war, and saying, in conclusion: "Although now sorely pressed, and with the products of our industry selling at prices which hardly remunerate us, we shrink not, like too many others, from any fair and honest load that may be imposed upon us. It is true, that we bear the burdens of our State government, but we are willing that our common mother, who has nursed us from infancy to manhood, should receive aid and assistance whenever she requires it. Let all the great and varied interests of our broad land come forward in the spirit which once animated our forefathers, and we will not be found faltering in the noble struggle. Your memorialists, therefore, respectfully request your honorable bodies so to equalize the system of taxation about to be imposed upon the country as to bear upon all alike, and in duty bound we will ever pray, &c."

ILLINOIS.

Cotton is this year to be a prominent crop in Illinois, and it is said that in Douglas county alone, fifteen hundred acres of it will be planted. An old farmer, residing six miles above, says that he used to grow bolls as large as his fist, and others recollect having seen a large field on the old Nicholas Bailhache farm, white with thrifty and well-developed cotton. Col. John Dougherty, of Jonesboro', passing through Alton recently, stated his intention to plant one hundred acres in cotton this spring, saying that in early times it was a common crop in his region of the State..... "*The Journal of the Illinois State Agricultural Society*. Since the announcement that the Society had determined upon a publication, there have been ominous shakes of the head in certain quarters, concerning the policy, propriety, and legitimate character of such an enterprise. There have been some pretty frank expressions of disapproval. It has been urged that it would injure the interests of the agricultural press of the State; and, with this belief, much righteous indignation has been expressed. But, 1.—The State Society has a right to publish such a journal if it chooses—just as much as to offer premiums for big bombs and great guns—for fast nags and coffee and cotton. The 'object' of the Society being 'the promotion of agriculture, horticulture, manufactures, mechanic, and household arts,' why is not the publication of such a journal 'legitimate?' 2.—If, enjoying better facilities for procuring information of great value to the agricultural public, it makes a better paper than can be done by private enterprise, it ought to be sustained, as should all enterprises giving the greatest good to the greatest number."..... It is stated that the largest farm in Illinois is that of Isaac Funk, who resides near Bloomington, McLean county. The total number of acres occupied and owned by him is 39,000—one farm of 27,000 acres, said to be worth \$30 per acre, and three pasture-fields containing, respectively, 8,000, 3,000, and 1,000 acres. His great crop is corn, all of which he consumes at home, and is thus able to market about \$70,000 worth of cattle per year at New York. His stock on hand of horses, mules, hogs, and fat cattle, is said to be worth \$1,000,000..... New evidences are daily coming to light, proving the capability of Illinois soil to the successful culture of the Chinese sugar cane. The newspapers are so rife with them that there is little room or necessity for amplification.

INDIANA.

The State Agricultural Society has elected the following officers for 1862: President, James D. Williams, of Knox; Vice-Presidents, Wm. H. Bennet, of Union, and S. Fisher, of Wabash; Secretary, Wm. H. Loomis, of Indianapolis; Treasurer, H. A. Fletcher, of Indianapolis; Executive Committee, J. D. Williams, of Knox; S. Fisher, of Wabash; C. Fletcher, Jr., of Indianapolis; A. D. Hancock, of Putnam; W. H. Bennet, of Union. The Tenth Annual Fair will be held at Indianapolis, commencing September 30th, and continue during the week.

IOWA.

At the annual meeting of the State Agricultural Society for 1862, the following officers were elected: President, Hon. George C. Wright, of Van Buren county; Vice-President, Dr. Sprague, of Butler county; Secretary, J. H. Wallace, of Muscatine; Treasurer, Mark Miller, of Des Moines; Directors, for two years, Dr. S. K. Brook, Polk county; Edwin Smith, Scott county; Mr. Eddy, Jackson county; W. Robinson, Des Moines county; Oliver Mills, Cass county. For one year, Dr. J. Wright, Marion county; Robert Severs, Mahaska county; Mr. Caldwell, Marion county; Peter Melendy, Chickasaw county. It was determined to hold the State Exhibition on September 30th, at Dubuque. Several samples of Sorghum syrup and sugar were on exhibition, and it

was estimated that the state crop for 1861 was not far from three millions of gallons.The Agricultural College farm is rented. A good farm-house has been erected, with the necessary out-buildings, and there is a young orchard of about four hundred trees, in good condition, but there is no stock there. No experiments are being carried on, and the institution is very little expense to the State in any way. Its concerns are snugly secured against loss, and thus they will probably remain until the National storm is over.....Wool-growing is becoming an important branch of agriculture in Iowa. Mr. Ten Eyck, states that in the fall of 1860, he took from Madison county, New York, to Hamilton county, Iowa, 113 Merino ewes. In addition to the travel by railroad, they were subjected to the exposure and fatigue of 150 miles drive across the prairie. Notwithstanding all this, the flock was wintered through without the loss of a single sheep. At shearing time they gave him an average of six pounds of wool per head. From them he also raised seventy-six lambs. The result may thus be footed-up: One hundred and thirteen sheep yielding six pounds of wool each, gives an aggregate of six hundred and seventy-eight pounds. This wool, now worth forty cents per pound, would bring \$271 20. The lambs, worth at least \$4 50 per head, gives \$242 00. Making the total return from the flock, \$613 20. More than this, he considers the sheep nearly one-quarter heavier than when they left New York.

KENTUCKY.

At the annual meeting of the State Agricultural Society, the following officers for 1862 were elected: President, Hon. L. J. Bradford, of Bracken county; Vice-Presidents, first district, P. Swigert, Franklin county; second district, J. B. O'Bannon, Jefferson county; third district, John G. Holloway; Directors, first district, O. H. Burbridge, Bourbon; Zeb. Ward, Woodford; Dr. L. P. Tarleton, Fayette; Caleb Walton, Harrison; and J. H. G. Bush, Clarke; second district, G. Mallory, Jefferson; S. T. Drane, Shelby; Geo. Denny, Garrard; Alf. Allen, Breckinridge; and Felix G. Murphy, Nelson; third district, John P. Campbell, Sr., Christian; R. B. Ratliff, Caldwell; Edward Rumsey, Muhlenburg; R. C. Harrold, Union; and J. J. Towles, Henderson; Secretary, J. W. Tate, Franklin county. Among other resolutions, was one of thanks to the Ohio State Board of Agriculture and the New York State Agricultural Society, for copies of their respective transactions, which were acknowledged, in the language of the resolution "in the confident hope that the relations of our respective Societies and States may always be marked by the same friendly interchange of information valuable to the different constituencies represented by us."R. A. Alexander, Esq., of Woodburn Farm, Kentucky, sent last year some of his finest shorthorns to his estate in Scotland; among them the bulls, "2d Duke of Airdie," and "Albion."

MAINE.

We have not received a list of the officers of the State Board of Agriculture. At the annual meeting of the State Agricultural Society, held at Augusta, the following officers were chosen: President, John F. Anderson, Windham; Secretary, Dr. E. Holmes, Winthrop; Treasurer, John W. Chase, Augusta; Trustees, Horace McKenney, Waldo county; Seward Dill, Franklin county; Member of Board of Agriculture, Calvin Chamberlain, Foxcroft. The Society, considering the extraordinary demands upon the treasury, voted to relinquish all claims upon the treasury, under existing laws, until the return of peace; drawing from appropriations already made simply enough to discharge the outstanding liabilities of the Society.The Eastport (Maine) *Sentinel* makes joyful mention of the fact that the old spectacle of cart loads of sound potatoes in the market has again appeared in that town, and the potato disease has disappeared.

MARYLAND.

The Agricultural College, near Washington city, is in successful operation, and the Trustees and Faculty thus declare their intentions, which are being carried out:—The College "is not so much designed to teach the pupils to be farmers, as to make our farmers liberally educated gentlemen, with special reference to the sciences that bear immediately upon their profession; to indoctrinate the youth of Maryland in those arts and sciences, which, with good manners and morals, shall make them not only skillful in their profession, but ornaments to society, useful citizens, and an honor to the State. Thus, while the student learns the various useful details of Agriculture and Horticulture, instruction in these is not at the expense of, but merely superadded to moral and intellectual culture. The course of study, which is as extensive as that of any College, includes the Ancient and Modern Languages; the Mathematics and their applications; the Natural Sciences, with special reference to Agriculture, Moral and Intellectual Philosophy and Political Economy." Tuition, board, &c., \$250 per annum.

MASSACHUSETTS.

We have not received a list of the Board of Agriculture for the present year, or a copy of its transactions for 1861. The State Society for the Promotion of Agriculture has published the results of various experiments with manures made under its direction, from which it appears that, "so far as these experiments have gone, they go to show that, for an immediate crop, at least, plowing the manure under very deep does not produce corresponding return, the best result being very nearly equally divided between that which was plowed in shallow and that which was only harrowed in. Where the manure was left exposed on the surface, a better result was obtained than where it was deeply covered. We have yet to learn the effect of manuring deeply or lightly with a view to succeeding crops, a fact of infinite importance to the farmer. The late Mr. B. V. French once tried the experiment by plowing in the manure of half a field 'as deep as he could get it,' and then treating the entire field alike, manuring the whole of it equally, and plowing it in very slightly. He kept an account of the product for several years, and the yield on each part was alike; to use his own language, 'I never saw anything of the manure which was buried deeply; it was, in my opinion, *thoroughly buried.*'"An ox, fattened by Hon. J. Sanderson, of Bernardston, has been taken to New York, and when slaughtered there, "the dressed animal weighed 2,473 lbs., or 154 lbs. more than the celebrated ox 'Union,' and exceeded any ox ever slaughtered in this or any other country."A committee of the "Hampshire, Franklin, and Hampden" Agricultural Society, of which G. M. Atwater, Esq., was chairman, for example, give some interesting data in a report published in its Transactions for 1861, which go to prove a striking advance in the weight attained by the cattle of the Connecticut Valley during the last forty years. It appears that in 1820, Jedediah Taylor, of Westfield, furnished 14 head "of the best known heard of fatted cattle," for the New York market, the average dressed weight of which was 1,000 pounds. In 1847 the herd of his son, George Taylor, also favorably known, dressed 1,300 pounds each. In 1860 the dressed weight of Hezekiah Taylor's herd was 1,500 pounds—an increase of 50 per cent. upon that of Jedediah Taylor's stock 40 years before. Now, from another part of the same report, we learn that it was in 1820 that Durham stock was first introduced into Westfield by I. Yeamans; that further purchases of Durhams in the same region were made by S. Lathrop, of West Springfield, in 1824, the Huntingtons, of Hadley, in 1834, and P. Lathrop in 1837; since which the character of the stock for fattening purposes has evidently been on the constant advance.

MICHIGAN.

The State Board of Agriculture is said to have succeeded in making the State Agricultural College a place where the experiments of the farm are united with the teachings of the books and lectures of the teachers in such a way as to fix *principles* in the minds of the students, and to prove or disprove *theories* by the light of scientific investigation. At a recent meeting of the Board and Faculty, among other resolutions, the following were passed: *Resolved*, That in order to carry out the ends and objects of this Institution, a system of measures should at once be devised in accordance with which the best method for the preservations of manures, and their application to different soils in the culture and growth of plants might be determined, and by which the principles of science here taught, relative to the propagation and growth of animals and plants might be freely tested and determined with a view to their ultimate adoption in farming operations here and elsewhere. *Resolved*, That the Professors of Agricultural Chemistry and Animal Philosophy be requested to report to this Board at the next meeting, plans and arrangements in reference to the views and sentiments contained in the foregoing resolution, graduating the same upon a scale commensurate with means at the disposal of the Institution and the present undeveloped condition of the farm, and such as will fall within the compass of their own personal supervision and control, for the instruction of the several classes in such studies; and the results of which they may be able to embody in their annual report from this institution. Tuition at the Michigan Agricultural College is free to all students from the State, and the board furnished at cost; room rent four dollars a year, and a matriculation fee of five dollars. "Students work on the Farm or in the Garden three hours a day, for which they receive adequate remuneration; the amount paid depending on their ability and fidelity. The wages for labor are applied on their board in the quarterly settlement of accounts."

MINNESOTA.

At the annual meeting of the State Agricultural Society, held at St. Paul, the following officers for 1862, were elected: President, W. L. Ames, of St. Paul. Vice Presidents,

(one for each Senatorial District)—1st Dist., H. Acker; 2d, H. L. Thomas; 3d, R. M. Richardson; 4th, John E. Putnam; 5th, Asa Keith; 6th, S. Bennet; 7th, H. Sprague; 8th, R. A. Mott; 9th, O. Densmore; 10th, F. Stowell; 11th, E. B. Jewett; 12th, J. V. Daniels; 13th, A. Adams; 14th, A. H. Butler; 15th, S. Bostwick; 16th, G. S. Ruble; 17th, N. Dane; 18th, M. D. McMullen; 19th, Samuel Shantlebury; 20th J. Flanders; 21st, A. Chmirlin. Secretary; J. A. Wheelock. Treasurer; J. W. Selby. Executive Committee—J. H. Stevens, McLeod; Jared Benson, Anoka; A. Chambers, Steele; J. H. Baker, Blue Earth; R. H. Bennett, Washington; W. L. Wilson, Ramsey; W. G. Le Duc, Dakota; William R. Smith, Hennepin. W. L. Ames, and J. A. Wheelock, *ex-officio*. J. A. Wheelock, Esq., the head of the well organized statistical bureau of Minnesota, has just issued his second annual report. It has ten subdivisions, treating, first, of the position of Minnesota in the plan of continental development; second, its physical characteristics and comparative geography; third, the productiveness of soil and climate; fourth, the agriculture, and fifth, the manufactures of the state; sixth, its commerce and navigation; seventh, internal improvements; eighth, population; ninth, property and taxation; and tenth, a tabular appendix. The contents justify this index, and form such a document as might have been expected from an intelligent statistician in a region which Governor Seward, in his speech at St. Paul, declared to be "the place—the central place—where the agriculture of the richest region of North America must pour out its tribute to the whole world."

MISSOURI.

There was quite a gathering of agriculturists at a meeting of the Fruit Grower's Association, held at the Supreme Court room in St. Louis, on the 14th of January, and several of the county societies have been reorganized since peace has been restored.

NEW HAMPSHIRE.

The State Agricultural Society is pursuing its career of usefulness, adding each year a valuable volume to its series of reports.

NEW JERSEY.

At the annual meeting of the State Agricultural Society, held at Trenton, the following officers were elected for 1862: President, N. N. Halsted, Hudson county. Vice-President, 1st Dist., John B. Jessup, Woodbury; 2d, N. S. Rue, Fillmore; 3d, P. A. Voorhees, Six Mile Run; 4th, George F. Cobb, Morristown; 5th, George Hartshorn, Rahway. Secretary, Wm. M. Force, Trenton. Treasurer, B. Haines, Elizabeth. Executive Committee, E. A. Doughty, Atlantic; Hon. William Parry, Burlington; Daniel Holsman, Bergen; John R. Graham, Camden; Doct. Leaming, Cape May; B. F. Lee, Cumberland; C. M. Saxton, Essex; Samuel Hopkins, Gloucester; C. Van Vorst, Hudson; George A. Exton, Hunterdon; J. G. J. Campbell, Mercer; J. S. Buckalew, Middlesex; Doct. A. V. Conover, Monmouth; William Hilliard, Morris; J. S. Forman, Ocean; M. J. Ryerson, Passaic; Benjamin Acton, Salem; J. V. D. Hoagland, Somerset; Thomas Lawrence, Sussex; C. S. Haines, Union; Philip F. Brakely, Warren. R. Jennings, V. S., says that the pleuro-pneumonia, which has not been extinct in some portions of New Jersey and Pennsylvania since its appearance there two years ago, has recently broken out in a very malignant form, the symptoms being more insidious in their approach, and more fatal in their character, than any heretofore met with.

NEW YORK.

At the annual meeting of the State Agricultural Society, held at Albany, the following officers for 1862 were elected: President, Hon. Ezra Cornell, Tompkins. Vice-Presidents, Thomas H. Faile, New York; Samuel Thorne, Dutchess; Herman Wendell, Albany; Oscar Granger, Saratoga; John D. Hungerford, Jefferson; Thos. J. Chatfield, Tioga; Patrick Barry, Monroe; Samuel W. Johnson, Cattaraugus. Recording Secretary, Erastus Corning, Jr., Albany. Corresponding Secretary, Benjamin P. Johnson, Albany. Treasurer, Luther H. Tucker, Albany. Executive Committee, T. C. Peters, Genesee; E. Sherrill, Ontario; A. Hubbell, Oneida; Clark J. Hayes, Otsego; W. Newcomb, Rensselaer. Col. Johnson read the report of the Executive Committee for the past year, which *The Country Gentleman* thus reports: "after a few brief and appropriate remarks upon the condition of the country as exerting an influence upon the agriculture of the State, this report refers, in detail, to the events, in its progress, which have occurred during the past twelve months; the deaths of several of the former officers of the Society; the labors of Dr. Fitch, its Entomologist; the character and success of its last Fair, &c., &c. The increased importance of wool-growing, and the

recent efforts to perfect the processes of flax manufacturing, under the scarcity of cotton, are mentioned; the appearance of the pleuro-pneumonia in this vicinity, and its apparent extinction in the course of the season, are alluded to; considerable space is devoted to the important subject of agricultural statistics, and the hope expressed that the Legislature will take favorable action upon the bill which has been introduced for their collection throughout the State." At the evening session Mr. Geddes, the retiring President, delivered his valedictory address, which is said to have been an able review of the progress of agriculture since the Society was organized. "During this period of twenty-one years, great improvements have occurred, especially in the manufacture of the implements of the farm, together with the great and unmistakable fact that the influence and associations connected with the proceedings of the Society, have tended to draw out the capital of wealthy citizens to an amount that cannot easily be estimated, or the renovation and better cultivation of the land, particularly in the older settled parts of the State. Annually bringing together the practical farmers of widely distant localities, for their ocular education in what good animals, good implements, and good plowing really consist, our yearly exhibitions have also lead to the co-operation of many men of large capital and generous enterprise, in the common object of the advancement of agriculture; and not one of the least of the achievements we have accomplished and are accomplishing, is in leading to mutual intercourse and acquaintance, by means of which the experience and progress of each are shared and diffused for the benefit of all. A Society thus, and in other ways, quietly pursuing through individual efforts and contributions, the public good of the State, should not, argued Mr. G., be made to support what is really a public bureau out of the private funds collected at its exhibitions; the money there obtained should be devoted to adding to the interest and increasing usefulness of future exhibitions, instead of being required even in part for the current office expenses of the Society. Mr. Geddes then introduced his successor, Mr. Cornell, who followed in a brief and appropriate acknowledgment for the honor conferred, and expressive of his determination to put forth every effort to render the term of his office, with the assistance of his coadjutors, more successful than the previous career of the Society under the guidance of the eminent men who had preceded him in the same responsible position." The next annual exhibition will probably be held at Rochester, which is regarded as an excellent location. "Upon the line of the Central Railroad, and receiving also the rich tribute of the whole Genesee Valley, Rochester, from east, south, and west, can draw such an attendance the coming year as will be sure to remunerate her liberally for the expense she will incur; while, if the season prove, as we trust it may, a season of peace regained, and agricultural prosperity fully restored, we might almost hope to witness an exhibition there unparalleled, either in its character or in the number of its visitors, by any in the whole history of the Society."

OREGON.

The receipts for admissions at the State exhibition held by the State Agricultural Society at Oregon City, in October, 1861, were \$1,321 17; for licenses \$125—total receipts, \$1,446 17. The amount paid for premiums was \$758; for expenses \$442 67; leaving a cash balance on hand of \$245 50. An excellent practical address was delivered by Hon. J. Quinn Thornton, and published in the *Oregon Farmer*.

OHIO.

At the Agricultural convention, held at Columbus, January 8th, the following State Board of Agriculture for 1862 was elected: N. J. Turney, Pickaway county; Jacob Egbert, Warren county; N. S. Townshend, Lorain county; H. B. Perkins, Trumbull county; T. C. Jones, Delaware county. Mr. Trimble and Mr. Reber declined a re-election, and Mr. Turney and Mr. Egbert were elected in their place. The Treasurer, G. W. Potwin, not being present to report the financial condition of the Board, D. E. Gardner stated that the Society was never in a better condition, there being over \$3,000 in the treasury. After the adjournment of the State Agricultural Convention, the State Board of Agriculture met at their rooms in the State House and organized for 1862, as follows: T. C. Jones, Delaware county, President; Henry B. Perkins, Trumbull county, Recording Secretary; David Taylor, Columbus, Treasurer; John Klippart, Columbus, Corresponding Secretary. A meeting of the Board was held the next morning, January 9th, at which a resolution was adopted to hold the next Fair at Cleveland, conditional upon its compliance with the usual requisites. The Transactions of the State Board of Agriculture for 1860, show that in that year, sixty-four county societies held exhibitions, and the following table gives the aggregate number of entries and amount of premiums paid:

| | No. of entries. | Premiums. |
|------------------------------|-----------------|-------------|
| Sheep..... | 3,010 | \$3,227 50 |
| Cattle..... | 5,083 | 7,258 25 |
| Horses..... | 10,948 | 12,733 50 |
| Swine..... | 1,490 | 1,489 00 |
| Poultry..... | 364 | 203 00 |
| Total for Animals..... | 20,895 | \$29,958 25 |
| Implements and engines..... | 2,170 | \$1,834 50 |
| Mechanical products..... | 1,643 | 1,534 25 |
| Manufacturer's products..... | 1,358 | 1,153 75 |
| Ladies' Manufactures..... | 4,454 | 2,135 25 |
| Total Mechanical..... | 9,625 | \$6,657 75 |
| Fruits..... | 3,407 | 1,076 50 |
| Farm products..... | 6,551 | 3,580 25 |
| Vegetables..... | 5,206 | 1,039 00 |
| Fine Arts..... | 886 | 309 00 |
| Miscellaneous..... | 4,327 | 2,238 00 |
| Total entries..... | 50,898 | \$38,858 75 |

In addition to the above, there are independent societies in Brown, Greene, Lorain, and Summit counties, having 2,233 members, which had 4,095 entries in 1860, and gave \$1,946 00 in premiums. The Sorghum growers of Ohio met in convention at Columbus on the 7th of January, Dr. J. A. Warder in the chair. Forty-two samples of syrup, and fifteen of sugar were entered for competition, and those present who had grown Sorghum, or made sugar from it, related their experience. Mr. Myers, of Clark county, said he was, at first, much prejudiced against raising it, but resolved to test it. In growing the cane the most important point was to give the seed a good start. He had sprouted and transplanted it, at from one-fourth to three-fourths of an inch in length, but found it would not answer. Early planting is not always desirable. His best crop was planted the last of May—the seed being prepared by soaking a minute and a half in boiling water. Had the ground in good order, and drilled the seed one inch deep and three and a half feet apart. Planted half a bushel of seed to the acre, in order that he might get one seed in ten to grow. It was also stated that “about 3,000,000 gallons of syrup were made in this State (Ohio) last fall, which has been sold at an average of sixty cents per gallon, or about \$1,800,000!” Prof. F. A. Mot, of Columbus, has succeeded in the manufacture of sugar from the beet. From a computation based upon his experiment, six and a half tons of sugar can be produced per acre, or 6000 lbs. of sugar and 600 gallons of syrup. Rating the sugar at six cents per pound, and the syrup at forty cents per gallon, the product per acre is \$600. Prof. Mot has ordered from France sugar-beet root seed to plant ten acres next spring, and is preparing machinery to manufacture it.

PENNSYLVANIA.

The State Agricultural Society elected the following officers for 1862: President, Thos. P. Knox. Vice-Presidents—1st district, John Rice; 2d, Frederick Showers; 3d, Charles K. Engle; 4th, Robert M. Carlisle; 5th, Wm. Stavely; 6th, Isaac W. Van Leer; 7th, Tobias Barto; 8th, Joseph Graybill; 9th, Martin Early; 10th, Charles A. Luckenbach; 11th, Daniel G. Driesbach; 12th, Amos E. Kapp; 13th, B. G. Peters; 14th, C. Eberly; 15th, D. O. Gehr; 16th, Thaddeus Banks; 17th, John B. Beek; 18th, James Miles; 19th, Michael C. Trout; 20th, James Slocum; 21st, John Murdock, Jr.; 22d, Moses Chess; 23d, Joshua Wright. Additional members of the Executive Committee, Wm. Colder, Jr., J. R. Eby, Jacob Mish, James Young, John H. Ziegler. Corresponding Secretary, A. Boyd Hamilton. Chemist and Geologist, S. S. Haldeman. Librarian, John Curwen. The Farmers' High School has been in operation for three years, and from the commencement has been well patronized. Heretofore it has been found necessary to exclude students from other States, in order to make room for those from Pennsylvania, owing to the unfinished state of the college buildings. But an appropriation of last winter by the State Legislature of \$50,000, has enabled the trustees to advance in the work of completing the buildings, so that they will be entirely finished early next summer. The main college building, we are told, is the largest edifice devoted to agricultural instruction in the world. It is, with the basement, six stories high, and covers an area of 19,200 square feet. It contains 165 dormitories, 10 by 18 feet square, and

9 to 11 feet high, affording ample room for 330 students. The building is also well supplied with commodious rooms for museums, scientific collections, lecture-rooms, and laboratories for chemical and philosophical study and experimentation. The cost of construction is estimated at \$121,000. Other property belonging to the institution, including a farm of 400 acres, makes the entire property of the school worth about \$178,000. Dr. Pugh, the President of this successful institution, says in a recent publication, that the student there "has an opportunity of seeing all the practical operations of the farm, garden, and nursery, in the most approved manner, with the use of the best manures, seeds, tools, and implements; and, what is of more importance than this, he studies in the class-room and laboratory the scientific principles involved in all he does, and by becoming a scientific man and analytical chemist, he is enabled to protect himself and others against the frauds and cheats that are continually being practiced upon the uneducated, by dealers who are themselves either ignorant of science, or use it to impose upon the community. He learns how to study the geology, mineralogy, and chemistry of the soil he cultivates, the botany of the plant he grows, and the laws of health and diseases of the animals he uses. In a word, he is made thoroughly acquainted with the laws and phenomena of the material world with which he is in immediate contact, a knowledge of which is essential to their material success, or intellectual pleasure, in the pursuit of the duties of rural life."

RHODE ISLAND.

At the annual meeting of the Rhode Island Society for the encouragement of Domestic Industry, the following officers for 1862 were elected: President, James D'Wolf Perry, of Bristol. 1st Vice President, Edward D. Harris, of Providence; 2d, Vice President, Edward Harris, of Cumberland; 3d Vice President, William Sprague, of Providence. Secretary and Treasurer, William R. Staples, of Providence. This Society, last fall, offered premiums for "samples of flax cotton fit for use on cotton machinery." But although none of the samples sent in were considered deserving of premiums, yet they afforded great encouragement for ultimate success, as being more valuable than cotton for mixing with wool, and in some kinds of goods a partial substitute for wool itself. A recent number of the Providence Journal says: "We have latterly seen a specimen of prints made from a mixture of 25 per cent. cotton and 75 per cent. flax. It shows to decided advantage in texture, color, and general appearance by the side of the cloth made wholly of cotton. The raw material can be afforded at seven cents a pound."

UTAH.

The annual exhibition of the "Deseret Agricultural Society" was well attended, and the exhibition of stock and of products is said to have been creditable. Fifteen hundred dollars in premiums was distributed. The Jordan Irrigation Company, which has been at work for the past five or six years, building a dam close by Salt Lake city, and making a canal for the conveyance of water from the Jordan across the valley west of that river, have got their project so far accomplished that the water has been taken out of the stream, and several thousand acres of heretofore vacant land (prairie) has been surveyed into lots of about twenty acres each, the favorite amount there, and apportioned to stockholders in the dam. The river is about five rods wide, and four or five feet deep. So much land being brought into cultivation close to the Mormon Capital must greatly increase the wealth thereof. The company was incorporated during the past year.

VERMONT.

The annual meeting of the State Agricultural Society was held at Bellows Falls, when the following officers for 1862 were elected: For President, H. Henry Baxter, of Rutland. [He declined, and Hon. Edwin Hammond, of Middlebury, was subsequently chosen by the directors.] Vice Presidents, Edwin Hammond, of Middlebury; J. W. Colburn, of Springfield; Henry Keyes, of Newbury; John Jackson, of Brandon. Secretary, Daniel Needham, Hartford. Treasurer, J. W. Colburn, Springfield. Directors, Frederick Holbrook, Brattleboro; E. B. Chase, Lyndon; H. S. Morse, Shelburne; D. R. Potter, St. Albans; Henry G. Root, Bennington; David Hill, Bridport; John Gregory, Northfield; Elijah Cleaveland, Coventry; Nathan Cushing, Woodstock; George Campbell, Westminster. Among the Resolutions adopted, was one denying the statements that the horses belonging to the Vermont Cavalry regiment are to be considered fair representatives of her "breed of Morgan horses;" also one expressive of interest in the success of the bill introduced in Congress by Hon. J. S. Morrill donating public lands to Agricultural Colleges, and thanking Mr. M. "for his determined industry and zeal in behalf of this great educational measure." It was also decided to hold the next annual

exhibition at Rutland, on the 9th, 10th, 11th, and 12th days of September next. The Directors of the State Society have called a "Wool Growers' Convention," to be held at Rutland on the afternoon of Sept. 9th, (the first day of the exhibition,) to promote concerted action, and to settle questions interesting alike to the producers and the manufacturers as to the proper manner of preparing wool for market. It is stated that the great losses met with by the wool growers the last year in the sale of their wool at less than the cost of production, has stimulated this movement. According to the statistics of Col. Needham, Secretary of the State Society, the annual production of wool by the State of Vermont for the last five years has been about four millions of pounds. The sales the last year were at an average of about thirty-three cents a pound, while the cost of production is not less than forty—realizing to the State a loss of nearly three hundred thousand dollars, which has passed into the hands of wool operators. Inquiries have been instituted for some years past, by direction of the State government, on the artificial propagation of fish. The result has convinced all concerned and interested in these investigations that the waters of Vermont are better calculated for the successful carrying out of these experiments than those of any other American States, and especially the rivers west of the Green Mountains. Prof. Hitchcock, the State Geologist, Prof. Agassiz, and other gentlemen interested, have made arrangements with the "Ball Mountain Company" for the use of that portion of Cold River which flows through their contemplated inclosure, for the purpose of thoroughly testing the matter, and that they will commence their operations at this point as early in the spring as may be.

UPPER CANADA.

The Board of Agriculture, at a meeting on the 29th of January, nominated the following gentlemen to form the nucleus of the Local Committee for the Provincial Exhibition of this year at Toronto; viz: F. W. Jarvis, J. P. Wheeler, J. G. Bowes, Mayor of the city of Toronto, James Beachall, President of the Toronto Electoral Division Agricultural Society; G. W. Allan, President of the Toronto Horticultural Society. The Canadian Parliament liberally appropriates \$4,000 per annum to the Provincial Society, with ten per cent. on the appropriations to county societies, which is between \$4,000 and \$5,000 more, and there is also a large Government grant. The entire sum voted in 1859 to the Provincial and county societies, is stated to have been \$66,004 21.

AMERICAN POMOLOGICAL SOCIETY.

This truly national association, which has held its biennial meetings at New York, Boston, Philadelphia, Cincinnati, and Rochester, will meet on the 17th of September, at Boston, Mass., Hon. Marshall P. Wilder in the chair. We cordially agree with the editor of a leading agricultural paper, that "the friendly meeting of fruit lovers, for a calm discussion of the real merits and demerits of the different varieties of fruits, is productive of good to themselves and to the country at large. We can but hope that before next September, our national troubles will be so far settled that, as in the past, the Pomological Meeting will be a *national* one. The Massachusetts Horticultural Society has ordered its annual exhibition for the same week."

CALIFORNIA STATE SOCIETY.

We regret to learn from Rev. O. C. Wheeler, Secretary of the California State Agricultural Society, that by the recent flood in Sacramento, the entire cabinet and the most valuable portion of the library of that Society were submerged, the former materially injured and the latter utterly ruined. The loss to the library includes all the sets of the transactions of kindred Societies, both European and American, public documents of the General Government, all the files of papers and periodicals, and most of the books of reference. They ask contributions of reports, transactions, periodicals, or specimens in natural history, and any contribution made or influence exerted in furtherance of this object will be highly appreciated by the Society. Immediate steps will be taken to prevent the possible recurrence of such a calamity. All parcels should be addressed to the Society, in care of Mr. Wheeler, and it is especially desirable that each one should be accompanied by the address of the contributor, and such facts as will be useful to the Society, and enable it to make due acknowledgment.

—The season in Denmark has been a favorable one—rye a good yield, wheat in greater quantity than usual, barley and oats fine and abundant. The Danish farmers are consequently able to offer a considerable surplus for exportation.

BRITISH AGRICULTURAL EXHIBITION.

The Royal Agricultural Society of England, over which Earl Powis now presides, will hold its annual exhibition for 1862 at Battersea, near London, in connection with the Highland Society, commencing on Monday, June 23d. The members of either Society may compete on payment of five shillings sterling (about one dollar,) on each certificate of entry, and non-members on the payment of fifteen, (about three dollars.) The premium list is stated by the English papers to be "of the most gigantic proportions," yet it is not equal in value to those of the recent exhibitions of the United States Agricultural Society. Medals of gold, silver, and bronze are to be awarded, with £3,670 in money, (about \$18,000,) which is to be somewhat thus divided: £1480 is allotted to cattle, £380 to horses not agricultural or dray, and £390 to those which are; £90 to ponies, £1105 to sheep, and £225 to pigs.

"The shorthorn, Hereford, and Devon classes are, as of yore, on an equality, with £300 and two gold medals for the best male and female. The prizes in each of them number twenty-four, and this is made up by giving second and third prizes in both the calf classes. The sum of £80, distributed into ten prizes, is allotted to the Sussex, longhorned, Norfolk, and Suffolk polled, North Wales, South Wales, and Irish (Kerry) breeds. The Channel Island cattle are divided into Jersey or Alderney, and Guernsey, and each class has £50 and seven prizes. 'The sound and stout' thoroughbred horse gets his claims recognized with £100 and £25 prizes. Then we have £135 for hunters, in which the sire, brood mare, and gelding of four of five, and mare or four or five, share the eight prizes. The dray horses (a distinction without a difference, to judge from the doings at the past shows) have eight prizes; and the Suffolks, which are now in a separate class, eight. Ponies above 12½ hands and under 14 have five prizes, and those below that standard the same; and two prizes for sires, two for mares, and one for geldings of four or five years old is the apportionment in each of these two classes. The Leicesters and Southdowns are still the favored breeds among the sheep, with £105 for their nine prizes, and a gold medal for the best ram in the classes as well. The Lincolns, Cotswolds, Kentish, Longwools, (not qualified to compete with the Leicesters or the above three breeds,) Irish pure native longwools, Shropshires, Hampshires, and West Country Downs, Oxfordshire Downs, and Dorset and Mountain, have all nine prize classes, with £90 each. On behalf of the Lincolns, Cotswolds, and Kentish, Mr. John Hudson, of Castle Acre, loudly demurs to this distinction in favor of the Leicesters and Southdowns, and endeavors to rally their friends to the general council meeting in May. The pigs have thirty prizes, of which ten are for boars and ten for breeding sows. Large breed of any color, small white breed, small black breed, Berkshire breed, and breed not eligible to compete with the above, is the classification.

"Glancing over the Highland Society's list, we find that it consists of four cattle classes—polled Aberdeen and Angus, polled Galloway, Highland, and Ayrshire, each with twelve first and second prizes, amounting to £117, and six silver medals for third prizes. The Clydesdales have the same number of prizes and medals, but their prize-money is £138; and in each of the sheep classes (black-faced and cheviot) we find eight prizes (£54) and four medals.

"The foreign-prize-list consists of 144 medals—one-third gold, one-third silver, and one-third bronze, besides six grand gold medals of honor for the cattle, two for the horses, and two for the sheep. The cattle are divided into thirteen classes—Charolaise, Garonnaise, Norman, De Salers, Pyrenæan, Breton, other French breeds; Flemish, Dutch, Swiss, Spanish, other foreign breeds, and Indian and other native colonial breeds; and each of these has three medals for males and three for females. The horse classes are arranged, as regards medals, on precisely the same principle, and consist of two—one for 'horses for heavy draught of any pure foreign breed,' and the other for 'agricultural horses used for general agricultural purposes only.' The sheep are also divided on the same principle as to medals, into eight classes—French merino, Spanish merino, Saxon merino, other pure merino, long-woolled foreign breeds, short-woolled foreign breeds (not qualified for the above classes), cross-breed merino, and other mixed breeds; and the pigs come into one six-medal class, under the comprehensive head of 'Pure Foreign Breeds.' The result will, no doubt, prove that a most arduous and difficult task of classification has been performed most ably by the prize committee, and we heartily wish Mr. Gibbs and the stewards a good deliverance from their Battersea toil."

—Recent letters from Brazil state that the *bicha*, or worm which attacks the leaves of the coffee-tree, are more than ever prevalent this year, and will greatly diminish the yield of the aromatic berry. On some *Fazendas*, or coffee plantations there will not be one-twentieth part of what, in former years, has been called a fair yield.

COLZA OIL.

The Light-house Board took measures, early after their organization, for the introduction of Colza, or rape-seed oil. There are several plants, the seeds of which yield this oil, and which are adapted to culture in our Northern and Western States. Among these is the wild cabbage, (*brassica oleracea*,) a quantity of the seed of which was imported by the Board, and distributed directly or through the Patent-Office.

In 1861, 5,000 gallons of this oil were offered at a cost of \$1 10 per gallon, and used in the light-houses of the lakes. It bore the tests applied to sperm-oil perfectly, and no complaint whatever has been heard of it. This year, 2,000 gallons of Colza oil have been offered and accepted at \$1 per gallon, and 10,000 gallons at \$1 10, thus furnishing the whole supply needed for the lights of the lakes, saving the transportation of the oil from the seacoast—the bids being from Wisconsin, the State where the plant is grown and the oil manufactured—and also saving upon the cost of each gallon nearly 65 cents; the cost of sperm oil ranges from \$1 58 to \$1 68½ per gallon. This encouragement to a new branch of agriculture and manufactures is, therefore, a source of economy. The Board have shown in several reports the advantages of the Colza oil for purposes of illumination. The objection made to it in 1851, that it rapidly deteriorated by time and exposure, is entirely unfounded. The Board can now state this from its own experience, as it then stated it from that of France.

EXPORTATION OF GRAIN.

The foreign demand for our surplus of breadstuffs continues, and is likely to be unabated, until the new crop there is ready for market. In consequence of the extraordinary late harvest of 1860 and the bad weather which followed, only three-fourths of the customary quantity of seed was committed to the ground in the autumn of that year and the spring of 1861, and it is estimated that over an eighth of that which was sown did not germinate; that about one million quarters were "shed" and lost in the fields by becoming over-ripe; that an unusually large quantity was last fall taken for seed, and that there have been large exportations to France.

The *Mark Lane Express* of January 20th contains estimates by correspondents, not controverted by the editors, which indicate so enormous a deficiency in the wheat crop, that it would seem that the United States, with her best endeavors, could hardly supply the demand, and it is quite certain, that had her trade been cut off by a war, the cry for food in the large towns of Great Britain would have been so loud as to have drowned all complaints for want of cotton. The estimate is as follows. We hope our readers will take the trouble to understand it.

| | Bushels. |
|--|----------------------|
| The regular crop of wheat of Great Britain and Ireland is..... | 164,000,000 |
| Short planted for last crop $\frac{1}{4}$ | 40,000,000 |
| Short yield of that sown..... | 20,000,000 |
| Quantity shed by being over-ripe..... | 8,000,000 |
| Extra quantity taken for seed for crop of 1862..... | 6,000,000 |
| Exported to France from August to December, 1861..... | 8,000,000—82,000,000 |
| | 82,000,000 |
| To which add the usual importation..... | 40,000,000 |
| Making the requirements..... | 122,000,000 |

It is admitted that France will want in all, for the year, 80,000,000 bushels, and probably more, because the chestnut crop, which usually feeds two millions of people in France, failed last season, while Italy, Spain, Portugal, and Belgium had all of them bad harvests.

It is estimated that since September 1, 1861, there have been imported into Great Britain and Ireland 19,200,000 bushels of wheat and flour, turning the flour into grain, against 32,800,000 for the corresponding period in 1860, and that France, up to January 20, had imported but little more than one-third of her necessary supply. The granaries of great Britain were probably never so empty at this season of the year, as now. Yet the price of wheat in London is not very high, being about \$1 90 per bushel, just about the same as it was in January, 1847, the year of the Irish famine! and yet before the 1st of June that year the price had advanced to \$3 20 per bushel! and through the famine that ensued, and its consequences, nearly two millions of the Irish population were swept from her naturally fertile soil!

It is difficult to see how the wants of England and France are to be supplied. We exported, in 1847, nearly \$69,000,000 worth of breadstuffs, and in 1854, nearly \$66,000,000. There is a vast surplus now on our hands, but it is not at the sea-coast, nor can it be until navigation opens, and it is a question for the old countries, who need it, to solve, how their supply is to be obtained.

The annexed table shows the shipments from the United States to Great Britain, Ireland, and the Continent, from Sept. 1, 1861, to date ;

Exports of Breadstuffs to Great Britain and Ireland.

| | Flour. bbls. | Meal. bbls. | Wheat. bush. | Corn. bush. |
|-------------------|-----------------|----------------|-----------------|----------------|
| New York..... | 891,515 | 450 | 9,717,004 | 6,678,660 |
| New Orleans..... | | | | |
| Philadelphia..... | 193,632 | 406 | 1,297,694 | 178,411 |
| Baltimore..... | 19,830 | | 279,093 | 82,387 |
| Boston..... | 145,135 | | 4,390 | 39,818 |
| Other ports..... | 27,739 | | 1,147,073 | |
| Total, 1862..... | 1,277,851 | 856 | 12,445,254 | 6,979,306 |
| Total, 1851..... | 1,391,771 | 2,663 | 13,691,839 | 3,402,596 |
| Total, 1860..... | 199,520 | | 523,645 | 23,073 |
| Total, 1859..... | 85,734 | 38 | 412,425 | 319,352 |

To the Continent.

| | Flour. bbls. | Wheat. bush. | Corn. bush. | Rye. bush. |
|------------------|-----------------|-----------------|----------------|---------------|
| New York..... | 318,886 | 6,768,009 | 239,029 | 787,425 |
| Other ports..... | 16,151 | 87,129 | 18,421 | 15,452 |

PLOWING BY STEAM-POWER.

Mr. Fowler, of England, has sent to this country one of his portable steam-engines used for plowing land, and so arranged as to be moved along the head-lands of the field by its own power. Beneath the engine is fitted a sheave, five feet in diameter, around which the rope for drawing the plows is passed, it being held firmly in the groove by an ingenious contrivance pressing on the rope while it passes over it. The balance plow used by Mr. Fowler is, like most other English farm machinery, made principally of iron, easily regulated as to depth and width of furrow, and guided by a simple apparatus for steering. The plow frame is made to balance on the axle; when one end is in the ground the other is elevated as shown, and furnishes a seat for the man who steers the plows. This double arrangement does away with the necessity of turning the gang of plows at the headland, and is made to pass back and forth across the field. To this frame different moulds can be attached for different work. On the opposite side of the field from the engine is an anchor, with a sheave attached, corresponding in size with the one on the engine. Mr. Fowler's machine was tested near Philadelphia, last fall, to the satisfaction of many spectators; and his agent, Mr. R. W. Eddiston, has visited the prairie regions of the West, to obtain a set of plows used there, and to obtain contracts for breaking up new or for plowing old land, at fair prices, to be paid when the work has been well done. Mr. Eddiston's address is No. 608 South Delaware Avenue, Philadelphia.

In England plowing by steam-power is being gradually introduced, and we learn that the appearance of a machine on Mr. William Lawson's farm in West Cumberland, has created a sensation. The arrival of a whole family of gorillas in the neighborhood could not have created more excitement than did this peaceful monster. The farmers were incredulous, the laborers indignant, and the blacksmiths contemptuous. "Many singular notions," says the *Carlisle Journal*, "were ventilated as to the future of the wonderful machine. 'It'll niver git up Thompson's broo' was the first prophecy; but it did, and proclaimed its triumph by a loud whistle as it entered the village. One worthy white-haired farmer exclaimed, with great vehemence of speech and gesture, 'It's a terrible machine, but it'll niver plew! It'll niver plew!! It'll niver plew!!!' Onward, however, went the engine, regardless of his triple comments, until it arrived at the railway end of the village. Just as it was crossing above a train entered the tunnel beneath, on emerging from which it was saluted with a triumphant whistle from the superior machine. This episode afforded a singular illustration of the triumphs of hu-

man ingenuity, and made such a strong impression upon the minds of many of the spectators that the mental odds against the monster were very much lessened. It seems to have done its work well; and the cry, 'It'll nivver pay! It'll nivver pay!' is the only one now left to console the change-hating rustics. M. Lawson, who is about to conduct his farming operations on the Meehi principle, trusts to astonish them much more in due season."

THE TRADE OF NEW YORK.

Until the farmers of the United States can have their Statistical Bureau, they must be content with what figures they can obtain from the merchants, and the returns of the trade of New York are well worthy of attention. The "footings up" of the New York merchants for 1861 were very satisfactory. While foreign countries have taken from them immense amounts of cereals, provisions, and miscellaneous articles, their importations of foreign goods have so largely decreased, that foreign nations have paid them thirty-seven millions of gold, in payment for their products. Instead of shipping forty-two millions of specie, as they did in 1860, they have imported, in 1861, thirty-seven millions. The decrease in dutiable importations is over one hundred millions, mostly dry goods. The free goods show an increase of about two and a quarter millions, and the warehoused goods a decrease of over five and a half millions. The duties on importations show a decrease of over thirteen millions. The exports of produce on manufactures, &c., show an increase of nearly thirty-six millions, while the exports of specie and bullion show a decrease of thirty-seven millions. The result of the last year's New York commerce, exclusive of specie, is as follows:

| | |
|--------------|---------------|
| Imports..... | \$125,680,407 |
| Exports..... | 138,594,901 |

Excess of exports..... \$12,916,494

As compared with 1860, the imports of merchandise show a decline of.....\$103,727,723

The exports an increase of..... 35,102,721

In favor of this country.....\$138,830,444

The receipts of produce at New York during the month of January were small, as compared with previous months, although generally far in excess of the corresponding period of previous years. In provisions, with the single exception of butter, the gain from last year is enormously large, and the following summary of receipts for the month, as compared with the two former years, is of interest:

| January. | 1860. | 1861. | 1862. |
|--------------------------|---------|---------|---------|
| Ashes, bbls..... | 1,615 | 1,015 | 1,333 |
| Breadstuffs— | | | |
| Wheat flour, bbls..... | 77,936 | 121,310 | 235,251 |
| Corn meal, bbls..... | 8,258 | 4,213 | 14,633 |
| Wheat, bush..... | 52,557 | 166,658 | 68,389 |
| Rye, bush..... | 8,074 | 1,394 | 39,645 |
| Oats, bush..... | 101,006 | 64,791 | 169,669 |
| Barley, bush..... | 64,707 | 45,376 | 137,351 |
| Corn, bush..... | 277,658 | 93,445 | 76,948 |
| Cotton, bales..... | 44,218 | 52,090 | 1,226 |
| Naval Stores— | | | |
| Crude turp., bbls..... | 4,619 | 4,088 | |
| Spirits turp., bbls..... | 11,888 | 8,887 | 60 |
| Rosin, bbls..... | 55,220 | 35,508 | |
| Tar, bbls..... | 4,738 | 8,949 | |
| Pitch, bbls..... | 526 | 502 | |
| Provisions— | | | |
| Pork, pkgs..... | 6,223 | 8,533 | 16,381 |
| Beef, bbls..... | 2,782 | 1,915 | 28,455 |
| Cut meats, pkgs..... | 11,835 | 8,146 | 30,616 |
| Butter, pkgs..... | 32,236 | 37,879 | 32,038 |
| Cheese, pkgs..... | 3,586 | 10,660 | 18,420 |
| Lard, tes. and bbl..... | 6,532 | 9,998 | 45,798 |
| Do. Kegs..... | 1,084 | 1,992 | 10,165 |
| Whisky, bbls..... | 19,797 | 16,698 | 21,672 |

Returns of the exports of produce during the month of January, 1862, show a falling off in the shipments of wheat, but a gain in almost every other description of produce. We cannot hope for a comparative gain throughout the year. The shipments throughout 1861 were far beyond all former precedent, and it is not reasonable to expect the same gain to continue. Indeed, we expect that the last will stand as the banner year for some time to come. The exports for the month, as compared with the two former years, were—

| | 1860. | 1861. | 1862. |
|---------------------------------|--------------|--------------|--------------|
| Domestic produce..... | \$36,793,091 | \$66,990,359 | \$71,812,033 |
| Foreign merchandise (free)..... | 1,939,566 | 939,175 | 496,811 |
| Do. (dutiable)..... | 3,660,863 | 3,138,743 | 1,914,989 |
| Specie and bullion..... | 37,371,456 | 20,670,313 | 3,645,086 |
| Total exports..... | \$79,764,976 | \$91,738,590 | \$87,868,919 |
| Do. excl. of specie..... | 42,393,520 | 71,068,277 | 84,223,833 |

AMERICAN CATTLE BREEDERS' ASSOCIATION.

The fourth annual meeting of the (New England) Cattle Breeders' Association was held at Hartford, Conn., and the election resulted in the choice of the following officers: President, S. W. Buffum, of Winchester, N. H. Vice-Presidents, R. Linsley, of Meriden; D. Buck, of Windsor, Conn.; Milo T. Smith, of Northampton, Mass.; C. M. Pond, of Hartford, Conn.; H. H. Peters, of Southboro, Mass. Secretary and Treasurer, Henry A. Dyer, of Brooklyn, Conn. Henry A. Dyer, Mason C. Weld, and Samuel I. Bartlett were re-elected Committee on Publication of a Herd-Book.

"The Association will publish a Herd-Book of Devons, Short-Horns, Ayrshires, and Alderneys as soon as a sufficient number of animals are entered. The committees now report upwards of two hundred entries of Devons, two hundred of Short-Horns, and two hundred and fifty of Ayrshires. The different breeds will be published in separate books, uniform in size and character, so that they can be bound together if desired. The opinion has obtained that this Association was local, a New-England Society. The design of the Association is to make a complete registry of the blood stock of the country; and the breeders throughout the United States and Canadas are invited to co-operate in making the Herd-Book to be published complete. The preparation of the pedigrees is in the hands of committees, each perfectly competent in its particular breed; and great care will be observed in the preparation for the press and in the publication to avoid errors. This is a mutual benefit arrangement; no one makes any money or fame out of it; but the need of a book such as we aim to make it, is felt by all who are interested in pure breed stock. The commencement of the registration of Ayrshires and Alderneys is a work that will commend itself to all as of immense importance. The first volume will be issued so soon as the names in any class shall reach six hundred."

THE LAST "NOVELTY."

The "Illinois Coffee" proves to be the *cicer arietinum*, the chick pea, a native of Syria, Egypt, Italy, the Levant, found among the corn or grain. The seed has a projecting cheek, hence its resemblance to a ram's head, which gives the name. The seeds are eatable, raw or boiled, and constitute a considerable part of the food of those countries. It flowers in June and ripens in August; is grown in drills or sown broadcast. This variety of the vetch, though it has, according to Dr. Darlington, been familiarly known throughout the civilized world for centuries, has several times of late years been introduced as something new and valuable. Lynch's Expedition to the Dead Sea brought it home under the name of "Hamoo's Pea;" and in 1856 or 7, it was sent out from the Patent Office under its Spanish name, "Garbanzo." The *Country Gentleman* (which has exposed this attempt at fraud) says that several persons who tried it at that time reported it as worthless.

—The Massachusetts Board of Agriculture say that the "cattle disease," or pleuropneumonia, has re-appeared in several places in the eastern part of that State, and trace it directly back to the old source. The Legislature has been induced to appoint a new commission on the subject; and the Board of Agriculture, through a committee—consisting of Henry H. Peters, of Southboro; Phineas Stedman, of Chicopee; and Freeman Walker, of North Brookfield—have issued a circular warning farmers to take the necessary precautions against contagion.

PUBLICATIONS AND DIPLOMAS.

Life-members are entitled to all the publications of the Society, from the date of their membership, but were the volumes to be sent post-paid, a heavy expense would thereby be incurred. Every exertion has been used to have the volumes containing the Transactions of the Society in 1857, 1858, and 1859, sent to life-members under Congressional franks or by private hands. If any members have not received them, duplicate copies will be sent on receipt of the postage stamps which have to be placed on them, viz: seventeen cents each for the transactions of 1857 and 1859, and thirteen cents for the transactions of 1858.

Only the first three of the four numbers of *The Journal of Agriculture*, which will form the volume of Transactions for 1860, have as yet been published, and only the first number of the four which will form the volume of Transactions for 1861. It is to be hoped that those already members will endeavor to enlist others, and thus replenish the treasury sufficiently to permit the publication of these four unprinted numbers, as well as the three which will be necessary to complete the present volume, and with it the first series of ten volumes of the Society's transactions.

Every dollar obtained from memberships is to be devoted to the printing fund, and the Society is not incurring any other expense, of any kind. The Commissioner of Patents kindly permits us to occupy rooms in the Patent Office, and its officers receive no salaries or allowances of any kind for their services.

Diplomas of membership are delivered at the office of the Society. They will be sent by mail, on wooden rollers, on receipt of seventy-five cents in postage stamps.

The fee for life-membership is so small that it will not generally defray the cost of the publications and diploma furnished, and if the postages were paid from the Society's treasury, the membership fund would soon be exhausted. The amount of postage is a small matter for each individual, but would amount to a large sum if paid by the Society.

STATISTICAL BUREAU.

One of the wisest practical recommendations made by President LINCOLN, in his recent message to Congress, was that for the organization of an agricultural and statistical bureau, from which might annually issue reports exhibiting, in mass and in detail, the condition of our agriculture, commerce, and manufactures. "Agriculture," said he, confessedly the largest interest in the nation, has not a department nor a bureau, but a clerkship only assigned to it in the Government." The statistics of this great interest, gathered and tabulated with accuracy, and published promptly from time to time, would be of the greatest service, not only to those immediately engaged in tilling the soil, but also to all who are concerned in buying and selling of its products, and to the country at large. The same may be said of all the great interests—commerce, manufactures, and other—which go to make up the wealth and industry of the nation.

—The Prussian Minister of Agriculture has offered a prize of about \$430, and a second prize of \$215, for the best two essays on "Worms and Insects Injurious to Agriculture," to be written in German, and handed in at the Ministry of Agriculture at Berlin, before the first of July, 1864.

—The *Polynesian* of November 16th, says that the coffee crop of the Sandwich Islands promises to pay well this year. Over 30,000 pounds have already been shipped to Honolulu, and the picking season has just begun. The coffee comes mostly from young trees, whose first yield it is, and which have not yet been affected by the blight.

—Camels are now in use over in Washoe, packing salt from Walker's Lake to Virginia City. They carry six hundred pounds each, and it is worth seven dollars per hundred. The salt is used in the chemical process of separating metals, and as it costs nothing at Walker's Lake, the owners of the camel train are making a very nice speculation in the packing business.

—M. LEBOUX, a Frenchman, has invented a feed-bag for horses, which is ventilated in front so as to allow the dust of the grain to escape, and the horse to breathe freely. The bag is hung by an elastic band, so that it rises as the weight of the grain diminishes, and constantly presents the feed to the lips of the horse.

—Large invoices of seeds have lately been obtained from Europe, at the Patent Office, and have been made up in packages for members of Congress, each of whom will be furnished with 417 papers, comprising 42 varieties of the seeds referred to, making an aggregate of 94,659 papers.

PREMIUM LIST FOR 1862.

The United States Agricultural Society respectfully requests State Boards and State Agricultural Societies to offer and to award the following Premiums, of Silver and Bronze Medals and Diplomas, in accordance with the conditions annexed, and to forward their reports to the National Society, (with any comments suggested,) before the close of the present year. Any premiums so awarded, will be promptly forwarded to the society making the award, for delivery. In each State and Territory, where no such central organization exists, the Vice-President from that State will designate a local Agricultural Society which will be requested to offer and award the premiums.

COTTON.

- For the best crop in each State and Territory,Grand Silver Medal.
 " " second best crop in each State and Territory,Grand Bronze Medal.
 " " third best crop in each State and Territory,Diploma of Honor.

FLAX.

- " " best crop in each State and Territory,Grand Silver Medal.
 " " second best crop in each State and Territory,Grand Bronze Medal.
 " " third best crop in each State and Territory,Diploma of Honor.

HEMP.

- " " best crop in each State and Territory,Grand Silver Medal.
 " " second best crop in each State and Territory,Grand Bronze Medal.
 " " third best crop in each State and Territory,Diploma of Honor.

The above premiums are to be awarded on crops raised the present year, and described in statements, (made on honor,) embracing the following facts: 1.—Location of the land, which must be at least half an acre; kind and condition of the soil; crops raised the two preceeding years; quantity and kind of manure then used, if any. 2.—Manner of preparing the land; quantity and quality of the manure applied, if any, and how applied. 3.—Quantity and kind of seed; whence obtained; when and how sown or planted. 4.—The time and manner of cultivating. 5.—Mode of gathering the crop and preparing it for market, with the actual yield. 6.—When the crop was sold, if disposed of, and its market value. 7.—A detailed account of the expense of cultivation, with any suggestions of a practical nature.

ESSAYS ON COTTON, FLAX, AND HEMP.

A Grand Bronze Medal and a Diploma of Honor will be awarded, in each State and Territory, for the best and the second best essays on each of the following subjects, written by a citizen of that State or Territory: The history of—the statistics of—the crop in other lands of—the insects injurious to the growth of—the implements used in the culture of—and the mode of preparing for market—Cotton, Flax, and Hemp. No essay shall be entitled to a premium unless it shall be considered by the committee to be of sufficient advantage to agriculture to entitle it to a place in the transactions of the Society. It is expected that the essays will be founded mainly (and on scientific subjects, at least partly) on the writer's practical experience and personal observation or investigation, or on authenticated facts; and when other authorities are quoted, distinct reference must be made. The award of superiority to any one essay over others, on the same subject, will be made in reference to its probable greater utility to agricultural improvement, as well as to the ability with which the subject is treated. In matters designed to instruct or to guide practical labors, clearness and fullness of details will be deemed a high claim to merit, and next conciseness.

A Grand Silver Medal will be awarded by the Executive Committee of the United States Agricultural Society, (in addition to the State award of Grand Bronze Medals,) for the best of all the essays received in each of the above-named classes.

It is earnestly hoped that the officers of State Boards of Agriculture, and of State Agricultural Societies, will co-operate in awarding the above premiums, and that they will at an early day appoint their State committees of award. Such committees will be announced in the next number of the *Journal of Agriculture*.

WILLIAM B. HUBBARD,

President U. S. Agricultural Society.

BEN: PERLEY POORE, *Secretary.*

OFFICERS
OF THE
UNITED STATES AGRICULTURAL SOCIETY,
FOR THE YEAR 1862-'63.

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WILLIAM B. HUBBARD, *Columbus, Ohio.*

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| C. W. POPE..... | <i>Louisiana,</i> | J. T. WARE | <i>Texas,</i> |
| JOHN LANG | <i>Maine,</i> | EDWARD HUNTER..... | <i>Utah,</i> |
| ANTHONY KIMMEL..... | <i>Maryland,</i> | FREDERIC HOLBROOK..... | <i>Vermont,</i> |
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| CYRUS ALDRICH..... | <i>Minnesota,</i> | F. W. HOYT..... | <i>Wisconsin.</i> |

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BEN: PERLEY POORE, *Washington, D. C.*

OPERATIONS OF THE UNITED STATES AGRICULTURAL SOCIETY.

The United States Agricultural Society was founded in June, 1852, by a national Agricultural Convention, (called by the direction of twelve State Agricultural Associations,) at which there were present one hundred and fifty-two delegates, representing twenty-three States and Territories, incorporated by act of Congress approved April 9, 1860. It has since been in active operation, receiving the confidence, patronage, and favor of American agriculturists, and co-operating with State and Local Associations. If it has not accomplished all which its founders anticipated, or which its present officers desire, it has furnished pleasing evidence of its growing prosperity and usefulness. All who wish to aid in awakening an extended and general interest in the cultivation of the soil are respectfully invited to enroll their names with those who have founded the National Agricultural Organization, and who desire to make it worthy of the great interest upon which the prosperity and happiness of our country is dependent.

Life Members receive an elegant Diploma, all the publications of the Society, and their share of such seeds and cuttings as may be procured for distribution, without any additional assessment or payment beyond the admission fee of ten dollars. *Annual Members* receive the publications of the Society, paying a fee of two dollars. County or town societies having the privilege of making their President, Secretary, or Treasurer *ex-officio* a Life Member, in which case the Society will receive the publications, &c. Remittances for membership can be made by mail to Hon. B. B. French, Treasurer United States Agricultural Society, Washington, D. C.

The Quarterly Journal of Agriculture is published every three months, and mailed, free of charge, to Honorary, Life, and Annual Members of the Society. It is earnestly hoped that there will be a sufficient number of new members this year to furnish means for the completion of the tenth volume of this publication, which will close the first series of the Society's Transactions. Three of these volumes are out of print, but seven of them can be furnished to new members. Missing numbers can be supplied.

The Secretary's Office is now in rooms generously furnished for the use of the Society by the Commissioner of Patents, in the Department of the Interior, where many objects of interest to those interested in agricultural improvements have been collected. Numerous State and County Societies have contributed their published transactions, premium-lists, the names of their officers, and other information, which has been registered, and they have received the publications of the Society in return. A majority of the agricultural and numerous other publishers have contributed their periodicals and newspapers, and thus aided in forming a Free Agricultural Library at the National Metropolis. Donations of models, specimens of fertilizers, and engravings of cattle or agricultural implements, are also solicited.

Annual Meetings.—Ten of these have been held at Washington city, and they constitute in reality the central "Board of Agriculture" recommended by the Farmer of Mount Vernon. Gentlemen from almost every State in the Union, (many of them delegates from Agricultural Associations,) have annually assembled to discuss such topics as have been presented calculated to advance the cause of agricultural improvement; interesting and valuable lectures have been delivered by practical and scientific farmers; reports have been submitted by committees specially appointed to examine new inventions and theories, and by delegates who have been accredited to the agriculturists of other lands; and there has been a general interchange of opinion.